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THE AGRICULTURAL STUDENT



OCTOBER 1914

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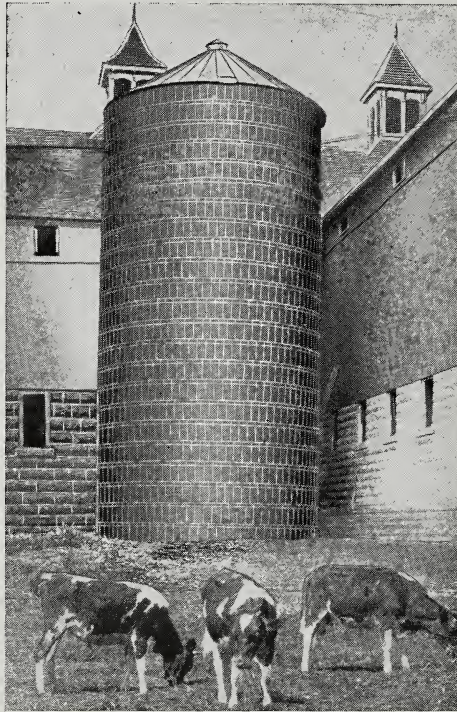
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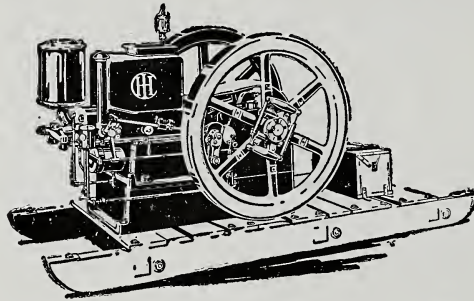
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CONTENTS

	Page
FRONTISPIECE—Courtesy American Shorthorn Breeders' Association.	
SOME FACTORS IN BABY BEEF PRODUCTION—	
B. E. Carmichael	105
SOME ESSENTIALS IN LIVE STOCK SANITATION—	
Dean D. S. White	110
THE DELAWARE COUNTY PERCHERON BREEDERS' ASSOCIATION—	
O. H. Pollock	115
FARM COST ACCOUNTING—	
O. R. Martin	118
INFLUENCE OF THE SIRE—	
D. W. Griffin	120
THE OHIO STATE SANITORIUM—	
H. G. Stevens	122
CONSIDERATIONS IN TILE DRAINAGE—	
M. E. Jahr	124
THE FARM TRACTOR—	
C. M. Emerson	126
THE DAIRY BUILDING AT OHIO STATE FAIR—	
W. C. Lane	129
THE STATE FAIR JUDGING CONTEST—	
L. L. Rummell	130
EDITORIALS	131
SECONDARY AGRICULTURE	135
ALUMNI NOTES	138
CORRENT LITERATURE	140
WITH THE BREEDER	142
NEWS NOTES	144



“Content so absolute
That no other comfort like to this
Succeeds in unknown fate.”
—Shakespeare.

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No. 2

SOME FACTORS IN BABY BEEF PRODUCTION

B. E. CARMICHAEL
Ohio Experiment Station

WITHIN recent years much more attention has been given to the production and fattening of young cattle than was the case when more range and cheap feed were available. Although it is true, other factors being equal, that a young animal will produce a given gain from less feed than will an older animal, yet it should be remembered that the gain is of a considerably different character, and that, in case the supply of heavy cattle becomes greatly diminished, market prices for light cattle are likely to be reduced to such an extent that feeders would not find it especially profitable to produce them. On this account feeders should attempt to adapt their cattle feeding operations to the conditions that they are working under, rather than for all to undertake the same kind of beef enterprise.

Although it cannot be said that markets will absorb an unlimited supply of baby beef without rather decided discrimination in favor of heavy cattle, yet when it comes time for marketing, young cattle have a decided advantage over heavy, highly finished cattle, in that the light cattle can be held for a longer period after they are in acceptable market condition than can heavy cattle without making serious inroads in the matter of economy of gains. The fact that baby beeves are both growing and becoming fat makes them able to continue their gain-making capacity through a much longer period than can

cattle that have been grown almost to maturity and then fattened.

A number of Ohio feeders have taken up this kind of beef production, and the work has been along different lines, according to the conditions that prevail. In some cases, western range calves are bought in the fall and fed through the winter and spring; in other instances the calves are raised by the feeder and are allowed to suck their dams until six months or more of age; and in still other cases, the cows are milked and the skim milk fed to the calves.

No one plan can be said to be best for all conditions. However, under present conditions of markets and labor, not many dairymen have deemed it advisable to raise their steers and not many raisers of beef cattle have found it practical to milk their cows. What the future may bring forth is not known, but it does seem very clear to the writer that conditions which favor beef production are the ones that will render it desirable to engage in dairying in any of its phases. However, if labor becomes abundant and cheap, and if beef prices keep to a high enough level to make the steer from a good dairy cow as great a profit producer as is the cow herself, then the two lines of production may possibly be combined. It is, of course, advantageous to have the calf get a generous enough supply of milk to provide for a good rate of growth. Unless it is practical

to put more than one calf on a cow, excessively heavy milk producing cows are not desirable if the calves are to be allowed to suck.

It has been decided that it is desirable to undertake baby beef production, there are a number of factors that must be given rather careful consideration if good results are to be secured. The proposition is much different from that of buying large cattle for a short, heavy feed, with the expectation of securing a much higher price per pound when the cattle are sold than is paid for them. Very frequently young feeder cattle that are bought on the market are bought at a price almost as high per pound as they can be expected to bring when they are fattened for market. In case the calf is raised from a cow used solely for that purpose it is certainly true that there are times in his life when he has cost more than he would bring on the market were he sent there.

First of all, it is evident that there is a greater need for careful supervision and attention to details when young cattle are being produced and fed, or even when they are being bought and fed, than is the case with heavy feeding cattle which are fed through a relatively short period and can stand much more unfavorable conditions in the way of shelter, rations and management than can the young cattle. The man who undertakes to produce baby beef should appreciate the fact that upon the attention he gives to the points mentioned above will depend to a considerable extent the outcome of his work. Of course, this is true with any kind of animal production, but slight building will do less damage in the more simple phases of cattle feeding than in the phases that are so easily influenced by unfav-

orable conditions. The longer feeding period and the greater number of animals kept, as compared with feeding heavy cattle, bring to baby beef production a greater need for the best of careful attention. This does not mean that there is any particular mystery, or extreme difficulty about feeding young cattle, but rather that there is a genuine need for intelligent and persistent attention to the details of the business.

No matter how good attention the feeder may give, unless he has the kind of cattle that buyers want when he markets them, a very high degree of success will not attend his efforts. Some kinds of calves can be marketed as veal better than at a later time as baby beef, and the man who undertakes to produce baby beef from inferior calves or from calves that carry much dairy blood is not likely to receive a very high price for his cattle when he gets them to market. Cattle for any kind of baby beef production should be of early maturing, thick fleshed, beef type if they are to be well received at market. Of course, other kinds can be sold, but they will not sell as well. In the writer's opinion, the smooth steer from a dairy cow is not nearly as worthless for meat as some market men and others would have feeders believe. However, the fact that there is a difference and that it shows up very distinctly in young cattle at market cannot be denied, and the man who would succeed in baby beef production should make it a point to breed from animals of approved beef type, so that his stock will not be discriminated against when he sends it to market. Uniformity in type, color, size and condition is also highly desirable, and it is well worth while to make a genuine attempt to secure it.

The same kinds of feeds may be used for baby beef production as for feeding older cattle, but the younger cattle have a greater need for feeds high in protein. Besides, these light cattle are not so well adapted for utilizing coarse roughage as are the cattle that have been accustomed to securing a large part of their living from rough feed. Good pasture grass or clover pasture may be used with excellent results whenever available, and one or both should be provided. The common roughages best suited for baby beef product-

well as large cattle on account of the difficulty in chewing the large unhusked ears of corn.

The kinds and proportions of grain feeds to use will depend largely upon the roughage that is used and the market prices that prevail for the different grain feeds that are available. It should be borne in mind that but little advantage will result from feeding grain before the calf is six weeks old, whether he is bucket fed or sucking the cow. As a usual thing, corn should constitute the major part of the grain ration,



NEW CATTLE FEEDING SHED AT THE OHIO EXPERIMENT STATION.

tion in dry lot are alfalfa hay, clover hay, and corn silage. As a usual thing, no attempt should be made to require young fattening cattle to make any large use of such roughage as over-ripe timothy hay, oat straw or wheat straw. Even corn stover, unless it is in good condition, is not a highly satisfactory feed for this use. These rougher feeds could better be fed to mature animals than to young fattening cattle, and if it is absolutely necessary to make large use of such feeds for fattening cattle, it would be advisable to use heavier cattle. Small cattle are, of course, unable to use shock corn as

whatever roughage is fed. If no legume hay is used a considerable amount of linseed oil meal, cotton seed meal or other similar feed should be given to supply the added protein that is needed when corn and roughage other than that obtained from legumes are fed. If clover or alfalfa hay constitutes roughage, little grain other than corn would be needed as long as the calf gets a considerable amount of milk. A fair allowance of either linseed oil meal or cottonseed meal would be about 3 pounds daily per thousand pounds live weight, providing legume hay of some kind is not fed. If legume hay consti-

tutes the sole roughage, the amount of nitrogenous supplemental concentrates used with corn could be materially reduced—probably not much if any more than one-half the amount suggested above would be needed. Oats and bran are so expensive that their use would actually decrease rather than increase profits in beef production. Since it has been found that cottonseed meal is not altogether safe for calves, it would seem wise to use linseed oilmeal instead of cottonseed meal for very young calves.

Generous grain rations will be need-

pasture is highly desirable for both cow and calf and it is seldom necessary to feed grain to beef cows when good grass is available.

Good shelter is needed for young cattle that are being fattened, but no expensive stabling is needed. Shelter that provides protection from wet and wind and that will give the stock access to sunlight on bright days, is about all that is needed for young cattle when generously fed. It is, of course, well worth while to provide facilities for preventing waste of manure and for its convenient hauling.



BABY BEEVES AT THE OHIO EXPERIMENT STATION.

ed if a high finish is to be secured at an age of 12 to 18 months, and the man who wishes to produce baby beef should be so situated that a generous grain allowance can be provided.

If the calves are being raised by the feeder it should be remembered that it is important to maintain his breeding herd in an economical manner. In order to do this, corn silage should generally be available for use in the winter. Rough feeds such as corn stover, hay that does not have a high market value, and good oat straw may be used to some extent. Abundant

Baby beef production does not offer great opportunity for making large profits in a short time. Properly conducted, under conditions that favor this branch of live stock farming, there is little reason to believe that immediate market conditions will render the business unprofitable, and the man who sells his crops to his beef cattle on his own farm does not really need to secure much more for his marketable crops than they are worth on the market in order for a profit to be realized from his beef production work.



VIEWS ON THE UNIVERSITY CAMPUS.

SOME ESSENTIALS IN LIVE STOCK SANITATION

DR. D. S. WHITE

Dean of College of Veterinary Medicine

AMONG savage peoples prevention of disease finds no place. They may invoke through prayer and incantation the assistance of their gods to protect them from the ravages of approaching epidemics or epizootics, but obviously such appeals are futile. Even among a civilized folk which stands firm in its belief in the efficacy of prayer as a factor in winning battles during war, there goes with the belief the suggestion "to keep the powder dry" at the same time.

In the earlier civilization little thought was given to prevention of ill health among man or beast. The doctor was looked upon as a healer and was never called in until his services were needed to cope with usually a well-established disease process. In fact should the physician dwell too much upon the preventive he was scoffed at, or, if tolerated at all in this capacity, his fee was not paid on the ground that he had rendered no service for he had given no drugs to a sick patient. From his standpoint, therefore, he looked upon advice along the lines of preventive medicine largely as "knocking the business." His whole bent was toward the more remunerative occupation, that of "curing." I do not say that the people of the earlier civilization were entirely to blame for their attitude toward the situation. The science of medicine is young. It is within the memory of a single generation that nearly all the successful means of disease prevention have been evolved. The modern method of preventing tuberculosis, hog cholera, black leg, anthrax and rous in animals; malaria, typhoid fever, yellow fever, plague and diphtheria in man, have

all been invented within the past twenty-five years and some of them (hog cholera, for instance) within the past ten. In fact, the true cause of hog cholera was not discovered until seven years ago! Obviously, therefore, the earlier doctors were not able to teach the people the prevention of disease as they did not know it themselves.

In the next civilization there will be relatively less of cure and more of prevention. An eminent Columbus physician, a man far ahead of his time, over thirty years ago made this statement: "Whenever a person dies of typhoid fever, somebody should hang for it!" This disease, which is spread mostly by contaminated water, has been almost eradicated from cities which have a pure water supply. On the other hand, all of us know of graveyards, especially in the open country, filled with the victims of the typhoid fever germ. The real builders of the Panama canal were not the constructing engineers but the health engineers who wiped out yellow fever and the bubonic plague which during the earlier French attempt played such havoc with human life on the Isthmus that the flag of this great nation was lowered in surrender to the germs of these diseases. It is a fact, the "doctors dug the ditch." The contribution which a skilled corps of health officials made to this great piece of engineering may never find its full appreciation by all the people, but to the minority who know it will ever stand out as one of the greatest human achievements of history. The bacteriological culture is not as spectacular as the steam shovel, but it is even more potent.

The fundamental principles of sanita-

tion are simple. Most of them are the applications of bacteriology. Others deal with the eradication of animal parasites large enough to be seen with the naked eye. To eradicate bacteria, worm broods or insect pests the life history of the parasites should be understood with especial reference to the agencies which bring about their destruction.

Most of the plant parasites (bacteria) are extremely susceptible to the influence of **LIGHT**, **CLEANLINESS** and **VENTILATION**. Therefore, any form of stable construction which involves these simple principles is good from the

tion, fancy finish or anything on or in which germs may collect. Everything should be as smooth as it is possible to make it and all designed to permit of easy access with cleaning utensils. In this regard, there is nothing better than concrete construction which is fortunately so prevalent in modern buildings. It is not only more durable, and therefore cheaper in the long run, but has little absorbing power compared with wood (unpainted). Germ life, therefore, is not harbored in the cracks and crevices as it is in the rougher surfaced timber.



LIGHT, CLEANLINESS AND VENTILATION.

health standpoint. In too many of our barns light is excluded to the extent at least that the sun can never shine into them. Take the tubercle germ as an example: In a dark, dirty, damp barn it will remain alive and virulent for from 100 to 150 days and longer while in the presence of direct sunshine it dies in a few hours. Much the same is true of all other plant parasites—**THEY CANNOT WITHSTAND GOOD LIGHT.**

Under cleanliness may be included a method of building construction which permits of easy cleaning. There should be no rough corners, recesses, projec-

In this connection let me digress for a moment to pay my respects to the continuous concrete manger so popular in modern cattle barns. While such a manger may be readily and quickly swept out, it offers the best possible opportunity for the spread of disease germs from animal to animal. A cow with "open" tuberculosis (one which is throwing off germs) is dangerous at both ends. First, her manure will contain numbers of tubercle bacilli which are dropped into the gutter behind; and, second, her expirium, especially when she coughs or bellows, will be laden with small globlets or drops

of bronchial slime from her diseased lungs which are sprayed into the manger. Her next neighbor will either inhale these virulent germs from the air or, what is more likely, take them into her mouth with the food. The same holds true where a common watering trough is used. Therefore, to prevent the spread of tuberculosis it has been found expedient to have tight partitions separating the heads of the cows. This practice is common in many parts of New England where tuberculosis has been successfully eradicated. In some instances individual buckets are used or the cattle are allowed to drink only flowing water.

Any system of ventilation which permits of frequent air change without draft is a good system. Stagnant air in an inhabited building is bound to grow vitiated by becoming too warm, too moist and by too much carbon dioxide developing in it. Formerly it was thought that the sole object of ventilation was to keep down the carbon dioxide content of the air, but recent experiments have shown that temperature and humidity are even more important factors. While bad ventilation alone cannot produce infectious diseases, nevertheless impure air lowers greatly the animal's normal resistance to disease, rendering it more liable to be successfully attacked by invading micro-organisms.

A thorough understanding of the relationship of light, cleanliness and ventilation to the prevention of disease is a most valuable part of the stockman's equipment. These factors are not only preventive but also curative. Formerly tuberculosis in man was treated by the administration of drugs (which too often hastened the end); nowadays it is most successfully treated by applying simple sanitary principles such as plen-

ty of good light, cleanliness and proper ventilation to which is added abundant good food and absolute rest as long at least as the patient shows fever.

Most of the benign infectious diseases in animals are similarly treated. In influenza of the horse, pneumonia, colt distemper, etc., no form of treatment is better for the patient than light, cleanliness and good ventilation with which is mixed equal parts of the extract of common horse sense. Obviously these factors are less successful in malignant diseases, such as advanced tuberculosis, hog cholera, glanders, and cancer; but even in such fatal maladies the results are more satisfactory than with anything yet tried.

As already noted, not all infectious diseases are due to those small, $1/25,000$ inch long, plant parasites called bacteria. A great deal of disease among farm stock is primarily due to the entrance into the body of animal parasites large enough to be seen with the naked eye. There are a large number of such, but only one of the most common can be touched upon here. The lung worm of the sheep may be taken as an example. Sheep seem the most susceptible of farm animals to worm invasions which lead to serious losses in the flocks of the state. The most common variety of lung worm found in Ohio sheep is the *Strongylus filaria*. The development of this parasite is known only in part. The parasite inhabits the bronchial tubes where the adult females lay eggs or in some cases produce living young. These are coughed up into the throat, swallowed and pass out with the droppings. In pools of water, damp ground, lands subject to overflow, and during wet weather on grass the worm brood undergoes intermediate development (some think in intermediate hosts such

as earth worms), attains sexual maturity and is ready to be taken up with the food and water from such contaminated pastures by susceptible sheep the bronchial tubes of which form a home for them. While the lung worm disease may appear at any time, it is most common during the pasturing period and reaches its climax usually in the fall months, generally following a wet summer. The prevention consists in keeping sheep away from low, marshy, damp pastures and indoors during long continued rainy periods. In some parts of Germany, where the disease is permanent, dry feeding offers the best protection. The coughed-up "sputum," infested feces and bedding should be destroyed. In a herd already infected, the healthy should be separated from the sick.

In spite of light, ventilation and cleanliness some of the more malignant diseases, once introduced, will spread from animal to animal until a large percentage of the herd or flock is infected. Peculiar to these diseases is the fact that in some victims they assume a local, chronic form, causing the individual which harbors them to appear perfectly healthy. Such an individual, however, may transmit the disease to other individuals in which it will assume an acute type leading to fatal termination. Tuberculosis, glanders of horses, hog cholera and infectious abortion are examples of this kind. To protect them against these infections requires either that they be kept entirely out of the herd by adding to it only animals with a clean bill of health, or where this is not possible (as in hog cholera, for instance) by rendering the other animals with which these "germ carriers" come in contact immune with vaccination.

Tuberculosis is a disease of farm ani-

mals which is confined to cattle, swine and poultry. It is caused by the germ of tuberculosis (tubercle bacillus) and nothing else. Cattle are infected from "germ carriers" or apparently healthy animals which, nevertheless, are shedding from time to time with the manure and "sputum" tubercle germs. Such cattle have what is known as "open" tuberculosis, which fact cannot readily be determined; it requires a cumbersome, expensive bacteriological test, which must be repeated often, to expose an "open" case of this disease. Therefore, to bring into a herd of cattle any animal which has not proven free from tuberculosis is hazardous. How may it be prevented? Easily. In tuberculin, which has stood the test of time for nearly a quarter of a century, we have an agent which, if properly used, will tell the truth in this regard with 98% accuracy. This agent has been used on the university campus ever since 1893 and through it the percentage of tuberculosis in our own herd has been reduced from 45% in 1893 to practically 0% in 1914. The university buys no cattle which fail to pass the test. The results not only pay in dollars and cents, but we can look any purchaser square in the eye and with a clean conscience realize that when he has bought an ox from the university herd he is getting what he pays his clean money for—clean cattle.

Glanders in the horse can be dealt with in the same way. The veterinary profession is working along similar lines to protect against infectious abortion, and while the method is not yet perfected, aided by a modified so-called "complement fixation test" (a laboratory blood test), the "germ carriers" in the herd can be picked out with a considerable degree of accuracy.

The diagnosis of many of the infec-

tious diseases cannot as yet be arrived at by the application of such laboratory tests as are used to detect tuberculosis, glanders, and, perhaps, abortion. But even in these cases we have been afforded protection through science although in another way.

It is a well known fact that in most of the infectious diseases one attack renders the individual immune from subsequent attacks. Good examples of this in animals are colt distemper (strangles), hog cholera and roup of fowls. Since the time of Jenner, the English physician who discovered that vaccination protected against smallpox, scientists have been applying the same principles to other infectious diseases. In some instances they have been successful.

For lack of space only two examples of disease which can be controlled by producing artificial immunity will be cited, viz: hog cholera and roup of fowls. Since the work of DeSchweinitz and Dorset, of the U. S. Department of Agriculture, we have now, if not a perfect, a most reliable and feasible plan to protect against the ravages of hog cholera. In principle the method consists in producing in healthy swine an immunity against cholera by so-called vaccination. It has been found, for instance, that by introducing the blood serum from a hog which has recovered from cholera, into the system of a healthy hog, that this healthy hog will be resistant enough to cholera infection to escape taking the disease when exposed to it within seven or eight weeks after the vaccination. If the healthy hog be injected with the serum and at the same time with virulent blood from a cholera hog a similar resistance to cholera will be established, but it will be stronger and more lasting, the immunity continuing for six to eight

months. The former method is safer for general use but less effective; the latter method dangerous to place out of the hands of the expert, but more reliable. Since vaccination to prevent cholera in hogs has been introduced several hundred thousand swine have been subjected to this form of prevention, and where the "serum" used was good, the method of administration and after-care of the hogs proper, the results have been very gratifying. Remember, however, anti-hog cholera vaccination is a PREVENTION and NOT A CURE. The principal reason why so many fail to reap the benefits which it is capable of rendering is because the average swine breeder WAITS UNTIL HIS HOGS ARE SICK before he begins to vaccinate—attempting the illogical thing of trying to prevent something from happening which has already happened! The common belief that to vaccinate healthy hogs is running the risk of introducing cholera into the herd is not substantiated by experimental evidence.

Roup of fowls is a disease so wide spread in Ohio, and in other states, that it has attained great economic importance. To control or better eradicate roup would solve one of the chicken raisers most knotty problems. A few years ago the College of Veterinary Medicine through Professor Brumley made a number of experiments in an effort to produce a vaccine which would control at least this disease. While still in the experimental stage enough has been accomplished to show that roup may not only be prevented but, except in advanced cases, also cured. Where chicken raisers have employed Professor Brumley's vaccine as a preventative roup has become eradicated from their flocks. It is hop-

THE DELAWARE COUNTY PERCHERON BREEDERS' ASSOCIATION

O. H. POLLOCK, Secretary

IT has often been truly said that the American farmer was too independent to co-operate for his best interests. Today with the great diversity of occupations found represented in this country there are but few callings that do not represent in some way more or less intensified co-operation. Some types of farming are no exception. It might be expected that the farmer

foundation laid—years with no apparently visible reward. With a section fairly well populated with one particular breed of live stock the records of co-operative buying and raising of superior sires can soon be noticed. Even if co-operative methods are not pursued, advancement can be made because there are enough breeders in the locality that are willing to pay the



CO-OPERATION ENCOURAGES THE BREEDING OF HIGH CLASS STOCK.

from the fertile agricultural districts would be the last one to be compelled to walk up to the trough for a sip of co-operation.

Companies have been formed by promoters in order that they might sell a high priced sire to some neighborhood, but who ever heard of a promoter being financially embursed to the extent that he would see anything in a project like community breeding?

It takes years to get the proper

service fee that is required if one is to make a paying business of keeping good sires for public service.

There are live examples where whole states are noted for Saddle horses, Thoroughbreds, Holsteins or Guernseys. Thus if a buyer was looking for a good Holstein he would go to New York, Michigan or some sections of Ohio and not to Arkansas.

But it is a little hard to hold together for co-operation, even at election,

such a large territory as a state. Much good along this line can be done, however, by dealing with smaller units, such as counties.

It is the work of the Delaware County Ohio Percheron Breeders' Association which I wish to use as an example, and shall describe what it has accomplished by organization.

Such an organization as this would have been an impossibility without the necessary foundation in the way of breeding stock, which has been accumulating in central Ohio since the first stock came from France in the early fifties. Louis Napoleon and Normandy, more commonly known as "Pleasant Valley Bill," were the most noted horses that laid the foundation for our American bred Percherons. Unfortunately for Ohio, Louis Napoleon passed to Illinois. But some of the stock tracing directly back to Normandy is still to be found among the most highly prized of our American bred Percherons in this county of Delaware.

Since the fifties there have always been Percherons in this locality. Many importations, have been spread over the territory and hundreds of pure bred Percherons have passed from the county.

Up until 1913 no real co-operative plans were ever made to assist in the disposition of the surplus breeding stock. It was really not necessary because there was but little demand for pure bred draft mares for anything more than gelding prices, and most of the desirable young stallions were picked up by dealers who developed and fitted them for sale.

Today in Delaware county the young stallions and mares are developed and fitted by the men who breed them. It is this situation that has made it advisable for the breeders to organize and

thus enable them to effectively advertise and sell directly to the ultimate purchaser.

There are but two of the fifty members of the Association that have been actively engaged in the importing business recently. The membership is made up of breeders and not dealers. They are small breeders too, owning from one to twenty-two Percherons. When the plans for the work of the association were drawn up, forty-five of the seventy breeders in the county were ready to make the project a success.

The object of this association as stated by its constitution is to promote the Percheron horse breeding industry in Delaware and adjoining counties of the state of Ohio by

1st. By holding an annual meeting in November of each year for the election of officers and for matters of importance to the industry and adoption of measures for the furtherance of the business interests of its members.

2nd. To bring into closer business relationship the farmer, breeder, seller and buyer.

3rd. To advocate and introduce co-operation in horse buying, breeding and selling.

4th. To disseminate educational matter looking to a better knowledge of the principles and practice of horse breeding, rearing, feeding and management.

5th. To assist in the observation and enforcement of existing legislation to ownership of stallions for public service, and encourage and insist upon honest registration of animals.

6th. To assist farmers and breeders in obtaining pure-bred stallions and making sales.

7th. To encourage proper classification and premium lists for horses at state, county and other fairs.

8th. To discourage the use of unsound stallions and mares for breeding purposes.

9th. To encourage the use of pure-bred stallions and educate against the use of grade and cross-bred sires.

Last year advertisements were carried in four leading Live Stock publications with a fair degree of success. The inquiries were addressed to the secretary who keeps a list of stock for sale. Market circulars with name and

At the State Fair the past two years all the Percherons exhibited by members of the association were stabled in one section in an attractive manner.

The cheapest, best and most lasting advertisement that we have is the good reputation as breeders that have been made by many of the horses sold from the county in the past.

With the present prospects for any early importations almost dead, the future for American breeders of Percher-



A GROUP OF DELAWARE COUNTY PERCHERONS.

address of the breeders who have for sale what the inquirer is in the market for are sent upon request. The secretary does not have anything to do with the sales. He simply cites the buyer to the seller and they make their own deal.

ons, who can deliver the goods, looks especially bright.

Then too, this state of affairs is going to give the American bred sire a chance to demonstrate his worth as a sire. He is bound to play a big game in the future of the Percheron breed in America.

Oh, wild west wind, thou breath of Autumn's being,
Thou from whose unseen presence the leaves dead
Are driven like ghosts from an enchanter fleeing.

—Shelley.

FARM COST ACCOUNTING

O. R. MARTIN

Assistant Professor of Accountancy, University of Nebraska

THE farm was formerly a non-trading, self-sufficing unit, and the farmer a laborer who provided entirely for his own needs. The farmer of today produces for the market, he specializes in different types of farming and in different farm products, he buys and sells, he borrows capital. Stated briefly, farming has become a business enterprise.

Although the farmer recognizes the general change taking place in the character of the farm, he still permits himself to be controlled largely in the selection and management of the different farm enterprises by intuition, by custom, and by tradition. The progressive business man does not rely upon such factors to bring him success. He has learned to appreciate the value of basing his judgment concerning the most profitable course of action upon actual and precise facts, and considers the time and energy necessary to secure and to study such facts profitably spent. The farmer must do the same. Thus a well-planned system of accounts is properly to be considered an essential part of modern farming.

Accounting systems are sometimes divided into two classes, viz: financial accounts and cost accounts. In a general way, financial accounts may be said to indicate the financial condition of an enterprise, together with the result of its operation for any period in terms of profit or loss. Cost accounts are used to ascertain the exact cost of production. For the merchant a system of financial accounts will suffice, but the manufacturer finds it necessary to call to his aid all the information secured through a set of accurate cost

accounts. The farmer is sometimes said to be both a merchant and a manufacturer. Careful observation, however, indicates that the latter is the more prominent, perhaps also the more important, phase of his work. It will be of interest, therefore, to consider in what respect a system of cost accounts may be of service to the farmer.

The aim of cost accounting in all industrial enterprises is not the same. In establishments producing a commodity, the price of which is under the control of the individual producer, the cost per unit of product is of importance in fixing the price. This is especially true in engineering enterprises where much work is done on contract rather than in producing stock goods for an open market. The producer is interested primarily in knowing at what price he can afford to sell.

In establishments producing a commodity for the open market, in which the price is already fixed by competition, the aim of the cost accounting system should be to indicate what commodities are the most profitable to produce, together with the most economical method of producing them. The price of commodities may often be fixed by more favorably situated competitors, or by competitors who are losing but are not aware of the fact. That the competitor who sells below cost will sooner or later fail does not alter the situation, since invariably there are others who follow in his footsteps. In such establishments a very important phase of the cost accounting work is what is frequently termed "testing out." The farm is essentially an enterprise of this second class. As an individual the farmer

cannot hope to control the price of farm products. Rather he must seek to have his cost accounting system point out to him the most profitable adjustment of his farm to the prevailing business and economic conditions.

Since the farmer cannot control the price of his products, he should use his cost accounting system as a tool with which to solve the many and complex problems of farm management confronting him. Briefly, these may be grouped under four heads, as follows:

- (1) The factors of production.
- (2) The system of farming.
- (3) The organization and operation of the farm.
- (4) Marketing.

The factors of production on the farm consist of the land, the farm equipment, and labor. Each of these factors has its own distinct problems, and in addition the law of proportionality must be worked out; namely, the proportion of the entire investment in the farm that shall be in the form of land, of farm equipment and of labor. An intelligent solution of these problems is possible only when based upon the facts presented in accurate cost accounts.

Such accounts will also keep the farmer informed as to the increasing or decreasing profitableness of the different systems of farming as business and economic conditions change. The most profitable system of farming to be employed will not necessarily be the same for different farmers at the same time and place, and will not be the same for the same farmer at different times or in different places.

It is important that the farmer know in detail the conditions obtaining in each department or enterprise of the farm. Cost accounts will furnish him this information. It often happens that whereas the farm as a whole is realiz-

ing a profit, certain enterprises of the farm are being operated at a loss. It may be that these enterprises can be eliminated from the farm or the conditions of their operation so changed that they will realize a profit, thus increasing the profit of the farm as a whole.

In testing out enterprises, however, they should be studied from two standpoints; viz, as independent enterprises and as related enterprises, as such, should be ascertained carefully. This will make it possible to give emphasis in the farm organization to those enterprises which are likely to realize the largest profit. On the other hand, an enterprise considered separately may be profitable, but it may not fit in well with the other enterprises that are an essential part of the system of farming that is being followed. Another enterprise, although not so profitable when considered independently, may make possible a more efficient utilization of land, labor, and equipment when combined with other enterprises, and thus result in a larger profit from the operation of the farm as a whole.

Cost accounts, together with the statistics which should always accompany the same, will furnish information of much value in solving the problems involved in the organization and operation of the farm. The proper correlation of the factors of production, the economical arrangement of fields, the utilization of labor and equipment in the most efficient manner and combinations, the correct adjustment of field crops to each other and to live stock, the devising of suitable systems of cropping, and the practice of efficient methods of crop production indicate the nature of these problems. Cost accounting should provide the farmer not only with information as to what it costs but also why it costs what it does.

There should be a detailed analysis of costs. In this way inefficiencies and wastes in operation will be pointed out and their elimination made possible. The attention of the successful farmer is constantly directed toward such problems as the reduction of man labor, horse labor, and machinery costs.

The farmer may also look to his accounts for assistance in the solution of marketing problems. Marketing involves both the problems of buying and of selling. As the farm becomes more commercial in its character the problems of marketing become more numerous and more important. Specialization in agriculture and in agricultural products leads to the same results. The time and method of purchasing the farm supplies and of selling the farm

products, the relative merits of co-operative buying and selling and of individual buying and selling, the extent to which advertising shall be employed, the advantageous utilization of credit, and the like, are problems of importance to the farm manager.

The application of the natural sciences to agriculture has produced excellent results. We raise more and better grains, our forage crops are better adapted to the physical conditions such as soil and climate, and our live stock has been greatly improved. In similar manner, it is to be expected that as the farm becomes more businesslike in its character, the application of scientific business principles and methods will result in a distinct advancement.



THE INFLUENCE OF THE SIRE

D. W. GRIFFIN, '14

IT is October. The sun's last rays are upon a screen of feathery clouds, giving them a shade of pink the greatest artist feign would imitate. Yonder, crowning the hilltop pasture, feeds the herd. Head and shoulders above the rest, his clear-cut outline backed by a fading light, stands the sire, a stately and proud master—beautiful to the eye of the most critical breeder.

Should he and his importance be unappreciated? It is to be regretted that too often they are, but some men have come to learn that this honor has been justly earned.

The true breeder values beauty only as it is found associated with great vigor, vitality and constitution. He measures the ability of the cow by her

powers of digestion and assimilation as related to production, and judges the ability of the sire by his "get." Hence the value of a sire is uncertain until his daughters come into milk, thus requiring a period of at least seven years.

During past years the tendency has been to make an early disposal of the sire,—before he has had a fair chance to "make good," but today we find men—slowly, yes, extremely so—overcoming this great fault.

The successful animal must be bred under the assumption that "like produces like," and the breeder is often able, by careful and painstaking efforts, to bring about favorable varieties that by proper handling may become inherent characters of the strain.

If we study the history of any breed we find that it originated from a small group of very prepotent animals which by careful selection from their offspring developed into a strain having the desired characteristics. Prepotency is "the superior influence of one parent over the other in determining the character of the offspring."

A sire spreads a wider influence than does a dam due to the fact that he is sire of a far greater number of animals than a dam is mother and thus his influence for good or bad is more widely disseminated. We say that the sire is seventy-five per cent of the herd. If so, it is of the utmost importance that we exercise every precaution in the choice of such an animal. A sire whose ancestors have been high producers has a far greater possibility of retaining the ability to transmit these characters to his offspring than a sire of mixed breeding.

A noted breeder of record cows in speaking of this subject said: "Breed the best to the best. This cow (Lindenwood Hope) has the blood and lines behind her; she has the ability with her; why, then, not breed her so as to produce offspring that shall carry as much of her blood as possible? Breed her to her son who bears no outward defects, but who should retain her inherent characteristics, thus doubly intensifying her merits and making her offspring that much more prepotent." "But," he continued, "I must be quick to note the undesirable variations and to eliminate them. I must recognize the unusual animal and give him the opportunity."

If the power of prepotency is not considered, is it possible for a sire to wield a greater influence over the character of an offspring than does a dam?

If one bred a cow to a certain sire and the offspring exceeded in production; and if this same cow were bred to another sire and the offspring of this sire has a far greater production than that of the former; the influence of the latter sire is greater than that of the former. But, you say this is only prepotency. However, when this same cow is bred to several other sires and, although her offspring are all higher producers than herself, if she is able to make but a small addition to her own record as an average for all the other sires; and she is then bred to a sire that makes his offspring have a greater production than any of these other daughters of this dam and also when bred to other dams, produces daughters of a much higher production than their dams and does this consistently; then this sire has a greater influence over his offspring than has the dam.

In order to make a practical application I have selected a sire (Holstein-Registry No. 29303); taken all his Advanced Registry daughters; and with their records compared the records of other cows that were of the same dams but different sires.

In this work fifteen cows were taken that were bred to this sire (29303). These same cows were bred to other sires. The average increase in butter fat of all 29303's daughters over the average increase of daughters of the same cows sired by seven other sires was 5.4925 lbs. in seven days. These records, then, show that a sire is even more than three-fourths of the herd.

Be quick to recognize the exception and just as quick to discard the deception. Give the bull a fair chance and then judge him accordingly for it is he that speaks success or failure in the herd.

THE OHIO STATE SANITORIUM

H. G. STEVENS, '15

THE Ohio State Sanatorium is an institution which was established for the treatment of moderately advanced and incipient cases of tuberculosis. The first patients were admitted in the fall of 1909. Thus we see it is a comparatively young institution, but in spite of this fact it is at present operating at its full capacity. When we stop to think that one out of every ten deaths in Ohio is due to tuberculosis; and that over 7,000 died in this state of that disease last year, we realize the necessity

sary conveniences for patient and employee. The patients sleep in cottages which are one story buildings fronting on the south and are provided with door-windows opening to a porch. These are opened a great deal of the time so as to provide for the patients plenty of sunshine and fresh air. At present there are 160 patients at the Sanatorium, which number is the full capacity of the institution. The medical staff consists of three physicians and six nurses.



GENERAL VIEW OF THE OHIO STATE SANATORIUM.

of preventative and curative measures being taken.

The Ohio State Sanatorium is located at Mt. Vernon, O. It is about one mile from the corporation and is located on the side of a small valley as shown in the picture. The state has \$700,000 invested in this institution under the supervision of Dr. S. A. Douglass. There are 350 acres in the tract, 150 of which are tillable, the remainder being woodland, lawns, and building sites.

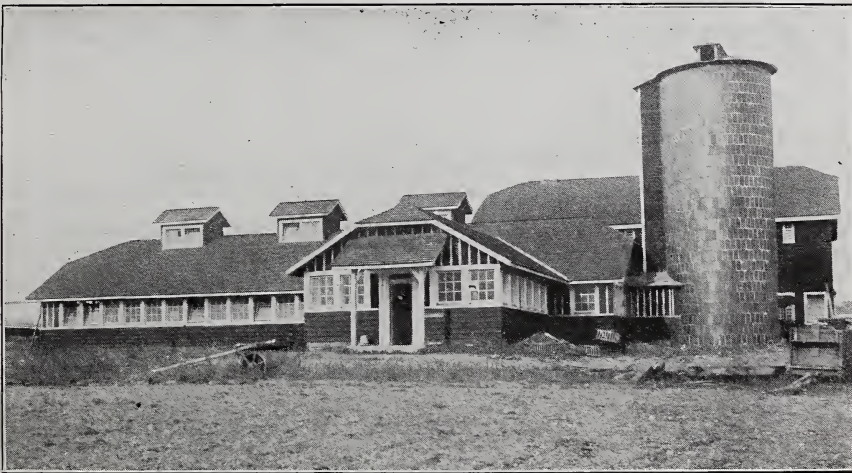
The buildings are well planned, nice but not elaborate, and have all the nec-

Preventive measures are taken with the dishes used by the patients as well as with their clothing. In each case the articles are boiled a sufficient length of time to insure the killing of any germs present.

I. J. Gault is farm Superintendent. Part of the farm is devoted to trucking; about two-thirds of the vegetables used in the institution being produced on the farm. The rest of the tillable land is devoted to general farming. This year 28 acres of wheat were harvested which yielded 30 bu per acre.

The live stock department is supervised by R. G. Crane. This department is well advanced considering the amount of money available for its use. This condition is in no small degree due to the efforts of Mr. Crane who is a graduate of Michigan Agricultural College and well acquainted with his line of work. At present they have seven registered Guernseys, the remainder of the herd being grade cows. They are milking 24 cows which supply the

true of every state institution; namely, economic operation. All the farming operations are carried out as on other Ohio farms. The idea is a realization of a profit for the investment and the labor involved. Often we find cases where a state maintains an institution at a loss because of poor management on the part of those in charge, or because too great a sum is invested to return a large per cent. of profit. But such is not the case at Mt. Vernon.



DAIRY BARN AT THE OHIO STATE SANITORIUM.

institution with milk and part of the butter, the daily consumption being about 400 lbs. of milk and 35 lbs. of butter.

Most of the manual labor is performed by convicts from the Ohio State Penitentiary. Eighteen of these men are employed to an advantage and enjoy a freedom that would be impossible for them to enjoy otherwise.

In the Ohio State Sanatorium we have an example of what ought to be

Economy is the watchword in all the farm practices. And, furthermore, along with economy goes the thought of these patients receiving the best medical attention amid healthful and pleasing surroundings. Truly, the state deserves our commendation for maintaining the Ohio State Sanatorium and that institution demands our admiration for the work it is doing and can be expected to do in the very near future.

CONSIDERATIONS IN TILE DRAINAGE

M. E. JAHR

Instructor in Drainage, University of Illinois

CONSIDERING the total cost and permanency of tile drainage there usually is not enough care given to the planning of a system and to the details of laying the tile. Most cases of failure can be traced to poor planning or improper methods of laying the tile. Perhaps no farm improvement is so expensive as tile drainage, but on the other hand, no improvement is more permanent or yields as high returns on the investment in the end. Nevertheless, farmers generally hesitate to incur the expense of a preliminary survey. No system should be started until it is known that every portion of the area can be drained into the main tile and also, the depth and fall of every main and lateral.

The first thing to consider in planning a drainage is the outlet which should be deep enough to allow a fall of at least one-twentieth foot in every one hundred feet of main and one-tenth of a foot would be better. In general the main tile should be laid through the lowest parts of the area to be drained and should be as short as possible. Laterals should have the greatest possible fall—at least one-fifth of a foot—and it is most economical to run them lengthwise, if other things are equal. Three inch tiles, except in clay soil, are not to be recommended for distances over 400 feet; but a four inch tile in most soils is large enough for distances not exceeding 1,000 feet. For greater distances a five inch tile should be used.

The tendency now is to lay all five inch tiles for laterals, especially in soils which tend to run into the tile, and if the tiles are improperly laid. A five

inch, poorly laid, may still be as efficient as a four inch tile. Experience and practice are necessary in judging the proper size of outlet, but to be on the safe side it is always better to plan it too large than too small.

The depth and distance of laterals depend almost entirely on the soil. Since free water moves faster in a loose soil, the laterals can be placed deeper and farther apart than in a fine grained soil. In course, open soils the depth should average four feet and the distance between laterals, not less than eight rods. In heavy clay soils the water moves so slowly that the tile will work better when not so deep, three feet giving the best results in most cases. In such soils the distance between laterals cannot be over four rods.

Due to the high water-holding capacity and the unsettled condition of peat, certain precautions must be observed to drain such soils successfully. "Heaving" is likely to occur because the frost penetrates more deeply in these soils. Peat soils settle each year because they consist largely of decaying organic matter. An old Englishman who had much experience in drainage on the "Fens" of England, states with authority that a peat soil after being drained will settle an inch a year. Both these facts mentioned make it imperative that tiles be placed deep in clay soils. A depth of less than four feet is not advisable and laterals need seldom to be placed closer than ten to twelve rods.

The installing of a tile system should always begin at the outlet. This provides partial drainage to the unfinished work as the work progresses, and pre-

vents the unfinished ditch from becoming filled with water during every rain storm, or even from "seepage" alone where the water table is high. Great care should be exercised not only to get proper fall, but to have that fall uniform. Any hump or sag in the line of tile very greatly decreases its carrying capacity. Every sag is likely to become filled with sediment to a level with the bottom of the tile on either side of the sag, which means that a two

ter in the sag is likely to freeze resulting in serious injury to the tile.

The cost of tiling per acre depends largely upon the nature of the soil and the difficulties encountered in the work. Peat soils can often be efficiently drained for from ten to twenty-five dollars or more per acre. One rod of tile costs about twenty-five cents and the work of digging and laying by contract averages about thirty-five cents and board per rod which makes the total cost



TILE DRAINAGE IS OFTEN A CONTROLLING FACTOR IN CROP PRODUCTION.

inch sag in a four inch tile will decrease the carrying capacity of the tile one-half. Where such a sag is not filled with sediment, it will be filled with water as long as water runs through the line of tile, and where frost penetrates the soil to that depth, this wa-

about seventy-five cents per rod. However, the advantages to be gained in use of waste land, facilities in cultivation and resulting crops are more than sufficient to warrant the expense of a thoroughly practical and systematic plan of tile drainage.

The lands are lit
With all the autumn blaze of Golden Rod,
And everywhere the purple Asters nod
And bend and wave and flit. —Helen Hunt.

THE FARM TRACTOR

C. M. EMERSON

Farm Engineer, Columbus, Ohio

THE modern farmer must keep abreast of the times, just as any other business man must, or be crowded to the wall. Progress must be his watchword just as in any other business. It is the progressive farmer who is today at the head of his profession. The progressive farmer employs the most up-to-date tools and methods and it is the progressive farmer who sends his sons and daughters to the universities, that they may learn the best methods and the latest tools to use on the farm.

Among the many labor and money-saving tools on the modern farm is the farm tractor. There are many different makes, and more different sizes of tractors on the market. It is not the province of this article to say which make or which size is best. That is for each individual to settle for himself.

First, let us see what work a tractor will do on the farm. It will plow the ground, harrow it, seed it, cut most of the crops, pull the binders, run the thresher or shredder, and haul the crops to the market. It will pump the water; run the churn, the cream separator, or the washing machine. It will generate electricity to light the home and other buildings. This will in turn run a vacuum cleaner, heat the electric iron, and run a motor for small machinery. So, there is scarcely any work on the farm but can be done with the tractor. It is not always economical to do all these with so large an engine, for in most cases a smaller engine will be much more economical. But, if necessary, it will do all these and many more.

Most farmers when they think of a "tractor" think of it as plowing. Here

is where the modern tractor distinguishes itself. Let us see what it will do in this field.

To plow an acre of ground by the old way a man must walk eight miles. To plow a square mile requires 5,200 miles of furrow. What a waste of energy! A tractor pulling four 14-inch plows will cover from ten to twelve acres in a day, and use about twenty gallons of gasoline; or if oil is used, it will use about 10% more. The lubricating oil will cost about 50 cents a day. So if you pay 16 cents a gallon for gasoline it will cost about \$3.20 for the gasoline, 50 cents for oil and \$2.00 for a man's time. Total for day \$5.70, or about 48 cents an acre. To plow with a horse it will cost for labor \$2.00; three horses' feed about \$1.00, or a total of \$3.00. It is a good day's work with horses to plow two acres. So the cost per acre is about \$1.50. Hence, it is vastly cheaper to plow with a tractor than with horses. As the average life of a tractor is about 10 years, and the average usefulness of a horse is ten years, the wear and tear is about the same. We need not take that into consideration. In doing the other work about the farm the tractor is just as economical.

There is another matter to be taken into consideration and that is, that the tractor never gets tired. You can work it all day and all night. In fact it is often run 22 hours a day by changing crews. When the season is late and you have but a short time to get in the crops, you can keep the tractor going all the time except the time necessary to fill the gasoline and water tanks. One man can go to meals while another

is running the tractor. In this way many a season's crops have been saved. There is no question as to the economy of a tractor at all.

With the question of economy out of the way another question comes up—what will it cost to do other work with the tractor? Let us see what amount of gasoline it will take to run other machinery or to do other work. A gallon of gasoline will pump 2,454 gallons

Agricultural Engineering of the University of Nebraska.

These questions disposed of, we come to the one of the size to buy. The size is determined by the use of the tractor. If you wish to plow, harrow, seed and harvest your crops you do not want to buy the largest. Large and heavy tractors pack the soil too much to be safe to use on plowed or soft ground. In fact, many of them cannot pull them-



LOWERING THE COST OF LABOR BY POWER MACHINERY.

of water from a well where the water was 43 feet from the surface; or enough to supply 300 head of cattle 24 hours. It will shell 264 bushels of corn. It will grind 48.6 bushels of corn. It will separate the milk from 300 cows. It will do about 20 weekly washings. It will grind about 20 sickles. If the binder is drawn by horses and the machinery driven by an engine as is often done, it will cut 4 acres of grain. This work was determined at the Department of

selves over such ground, let alone do the work. In buying a tractor always get the draw bar pull. That is, the pounds it will draw, in addition to its own weight. A good tractor should have a draw bar pull of 3,000 lbs. at least and most of them do. So, if you get one weighing from 5,000 lbs. to 6,500 lbs. with this pull, you will have a tractor which will have the highest pulling power with the least dead weight to draw. The following rule is

the one to use to determine what the draw bar pull is after deducting for the power it takes to drive the machine itself over the ground.

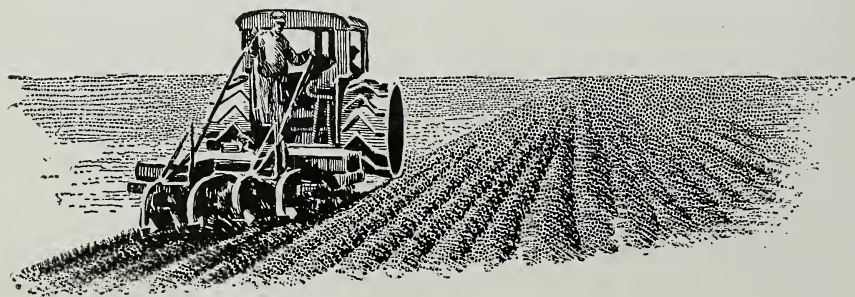
Multiply the weight of the tractor by the percentage of the grade, deduct the product from the draw bar pull and the remainder will be what is left on the draw bar after hauling the machine. For instance—suppose the grade is 15% and the weight of the tractor 5000 lbs. 15% of 5000 is 750 lbs. Deduct that from the 3000 lbs. draw bar pull and 2250 lbs. remain. This is the actual pull of the tractor. Suppose you have one weighing 17,000 lbs., as many do, then 15% of that is 2550 lbs. Deduct this from the draw bar pull, and 450 lbs. remains as all there is left to draw the load. This accounts for the poor pulling quality of many tractors, especially on hilly roads and soft ground. Most small tractors are of ten to twelve horse power. If this is power enough for all the machinery you wish to drive, then, there is no use buying any heavier tractor.

How to select a tractor is a very important matter. First get a good one. When you go to buy a horse you first select one of suitable size. Do the same with your tractor. Then you look to see if he is sound, well built and liable to last a long while. Do the same with the tractor. You will look to see if he is well ribbed, as an indication of being

an easy keeper. Do the same with your tractor. How will you do this? By this time you know what size you want, so we will look for quality.

Give fuel consumption, draw power, simplicity, appearance and design due consideration. But first of all see that you get one which will work all day. Look carefully at the cylinder and see that the piston and rings have been ground to a fit, and not just turned and sent out rough. Good fit here will save fuel. Look at the shaft to see that it has been ground as well. See that you get bronze bearings, or if babbitted, see that they are scraped to a fit. This will save hot boxes and lost time. Look at all the gears and see that they are all cut from the solid metal, and not cast with the teeth on. Cast gears not only are not true, but they cause much more friction than cut gears. This takes more power, as the smoother and better fit gears have less friction and consequently require less fuel.

Lastly, do not be afraid of paying a little more to get these things than some will offer you a machine for. A cheap machine is built to sell cheap. If you pay a little more to get a good horse, then why not pay a little more to get a good machine? It costs more to make such a machine as I have told you of, but you will save time, money, patience and temper by buying it.



THE DAIRY BUILDING AT OHIO STATE FAIR

W. C. LANE, '15

IN this day of progress, we are utilizing every opportunity possible to educate people: and if we cannot induce them to attend schools and colleges, we may through the many papers bring learning to their very doors; or by exhibits of various kinds force knowledge upon them. The Ohio State Fair is one great exhibition where people can learn. It not only affords opportunity to learn, but because of its many graphic displays the people cannot keep from learning.

A very interesting as well as instructive display at this exhibition was that given by the Dairy Department of the State University. For this purpose a special "Dairy Building" has been provided. The Dairy Department is expected to fill this building each year with demonstrations and displays that will instruct the countless visitors that throng through it. It is easy to interest those actively engaged in the business but the Dairy Department must not be confined to this class of people. It must go farther and instruct the consumers of milk and its products. True, nearly everyone was to be interested in this display.

Along the north walls were hung charts and pictures to explain and illustrate the work of the department. To the east or left of the entrance, was a group of butter tubs to represent the wonderful production of May Rilma, the champion cow of the world. This noted cow produced nearly 1300 pounds of butter in one year—enough to fill 26 fifty pound tubs. Then as a contrast were three tubs and seven cartons to show the average production of Ohio dairy cows.

In the same way the milk production

of champion cows was shown as compared with the average. There were many pictures of great producing cows, and charts to show what the Advanced Registry is doing in Ohio. By this it has been shown that Ohio is the home of the best dairy cattle in the world, both by individuals and by herds. All this was to inspire the breeders and feeders to higher aims and ideals.

To the right of the entrance was a complete equipment where daily demonstrations were given in counting bacteria in milk, testing for sediment, moisture, fat, acid, casein, adulterants.

On the center was an array of bottles to show the constituents of milk, cream, skimmed milk, cheese and butter. This attracted a great deal of attention both to dairymen and consumers, as they were struck by the high percentage of water in milk, and yet astonished by the great food value of milk and its products. In this corner many people were getting their first insight into pure milk, and the ways of knowing it, and of learning about bacteria, and even seeing the isolated colonies from milk.

In order that the exhibit would not all be theoretical there was a complete dairy instituted, where milk was handled from beginning to end. In the wing of the building six Jerseys and six Holsteins from the Hartman farm were kept to show that a stable can be kept in a sanitary condition. As a whole the exhibition was a school where dairy men were taught better methods and higher aims and where the consumer was taught to appreciate the delicious products of sanitary dairies. Perhaps nothing better could be written than that many visitors said: "This was one of the best exhibits of the whole fair."

THE STATE FAIR JUDGING CONTEST

L. L. RUMMELL, '15

COMPETITION was keen and the results were close in the Judging Contest held at the Ohio State Fair on Tuesday, September the first. This contest is open to all the students in the college of agriculture who have not won a first or second prize in any previous contests. This year thirteen men tried for the coveted honors and money.

Through the courtesy of the agricultural commission, who have charge of the fair, one hundred dollars were distributed in cash prizes, twenty-five dollars being awarded in four classes. Ten dollars were given the man having the highest score; eight for second and seven for third in each class. The men judged classes of horses, sheep, cattle and swine. All this stock was gladly furnished by exhibitors at the fair. The contest was conducted by Gilbert Gusler assisted by T. Stone and J. S. Coffey of the Animal Husbandry Department. Reasons were written for the placings on stallions and dairy cows and given orally on sheep.

The classes and results follow:

Horses—Percheron yearling stallions and Percheron brood mares)—First, C. J. Fawcett; second, L. L. Rummell; third, L. A. Voorhis.

Cattle (Holstein cows and Polled Durham Yearling heifers)—First, J. V. Lowe; second, C. E. Wylie and R. L. George (tie).

Sheep (Shropshire yearling rams)—First, A. J. Bishop; second, R. Wylie; third, J. S. Gibbs and D. P. Evans (tie).

Hogs (Yorkshire gilts and Poland China boars)—First, C. J. Fawcett; second, J. S. Gibbs, C. E. Wylie, R. L. George and L. P. McCann (tie).

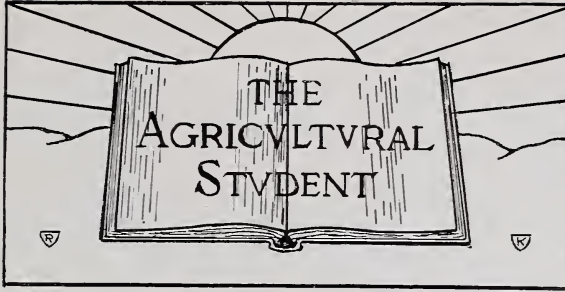
The cases of ties in cattle and hogs

were disposed of by adding second and third money and dividing equally among those in second place.

In total score, J. S. Gibbs stood first with C. J. Fawcett a close second. L. P. McCann was third. L. L. Rummell and A. J. Bishop tied for fourth place. The high score of Mr. Gibbs is due to the fact that he won a place in each class although he stood high in none.

Excellent individuals were selected for the contest, many of them being prize winners in the show ring at Columbus and other large fairs. One class in particular which will be remembered by all the contestants was a ring of four Poland China hogs owned by C. W. Porter, of Millsboro, Pa. These hogs were winners at the Forest City Fair the previous week and carried off ribbons at the Ohio State Fair in every class in which they were entered.

One of the opposing factors of the contest was the small number of students who entered. With an attendance of 1200 students the college of agriculture would be expected to have more than a mere handful of representatives at the State Fair. Prizes are sufficiently large to attract the students to enter and the live stock alone should be a drawing card. The best stock in the state was arranged before these critical eyes. Every student in the college who is interested in live stock, and especially those who expect to try out for the judging teams, should be interested in the contest. Watch for the date next year, come to the State Fair, judge these winners in the show ring, and make the contest more interesting and competition more keen, and get a share of the money.



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COLUMBUS, OHIO, OCTOBER, 1914.

EDITORIAL

Shake hands, Mr. Freshman. Glad to see you at the University and glad to have you among us.

WELCOME. We are starting many things anew this year and we want you to be in the crowd. Join in at the first of the year and make a good start in the right direction.

New surroundings may bewilder you. Old acquaintances will lurge up more noticeably because you see here only strange faces. Hereafter, you will go back as a visitor to the home circle and the home community for we expect you to make your future home among us.

Become acquainted with your classmates and your instructors. Show them that you are in "dead earnest" to carry out your primary purpose in coming to the university—that you are

here to work for better manhood and a higher citizenship. Remember your contract with the university and play your part of the game as a loyal Ohio State man. Get the most from your studies and the facilities of this great educational institution.

However, the social side of college life is too worth while to ignore. It should not be neglected. A liberal education implies more than text books. College activities—literary, athletic, social—stand forth in the course almost as necessities. Yet they are not to be indulged in to the exclusion of class room work. What we need is a reasonable amount of outside activities in proportion to the amount of spare time after class work.

Plan to come over to the next meet-

ing of the societies in the agricultural college. The doors are always open to you. Your friends will be glad to welcome you at the meetings. Other men are yearning to become acquainted with you. Watch for the notices of the meetings and plan your schedule of spare hours to attend.

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These are stirring times in agriculture in this country in general and in Ohio in particular. We

THE COLLEGE OF AGRICULTURE. have entered a new epoch in the state which bids fair for the greatest development of our possibilities along these lines in the near future.

With this growth of the industry goes a similar growth of our agricultural college in its various lines. The enrollment this year in this college exceeded 1000 not considering the short course men who enter in October. New accommodations have been provided particularly by two new buildings—the Horticultural Building and the Zoology and Botany Building. These surpass in architecture, design and accommodation any of the others in the agricultural college group.

With all this advancement of the cause of agriculture, however, there has been oppositon, personal animosity. It seems that some men are raising trouble merely to satisfy a desire in this sort of thing. The attacks have in the main been aimed at those in whose hands agricultural education in Ohio has been entrusted. Before forming an opinion pro or con in this question it is well to look behind the scene to see if personal enmity gives it any color. Look to the facts of the case and then base your opinion on those facts. Are personal matters to be put above the college? Is the man or the institution

as great as the cause? Is the cause not to be kept uppermost in our minds?

We ask this because of comment in recent issues of some farm papers. It has been stated that "friends of the agricultural college and University" claim the control of the college will be placed under the direction of the agricultural commission. We wish to have the facts. Who are those "friends of the college and of the university?" We speak in no uncertain terms. Can they truly be called friends who make such false rumors and who favor this propaganda to "knock" the college and the university? While we do not discredit friendship, we do wish to inquire who the "thousands of loyal friends" are that take such interest in the college. Along this line Dean Homer C. Price has sent the following signed statement: "An unfounded rumor to the effect that there is friction between the Agricultural Commission of Ohio and the officials of the Ohio State University has been persistently circulated by certain individuals who are attempting to discredit and break down the existing agricultural agencies in Ohio.

As Dean of the college of agriculture and member of the agricultural commission I wish to emphatically state that to my knowledge there is no movement to transfer the college of agriculture from the university to the agricultural commission."

It has been stated that a conflict of authority exists between the commission and the university officials. On the contrary the state departments are all working in harmony for the interests of Ohio agriculture. It is true that difficulties have arisen but they had to be met and overcome. This was made necessary under the conditions in order that the program of work for the future might be carried out in its full-

est extent, with the greatest efficiency, and eventually with the best results to both the officials in charge and those for whom the work was intended.

Extension work in Ohio has reached a high mark in its development. The department stands on a high plane as compared with similar departments in other states. Mr. C. B. Smith, of the United States Department of Agriculture, who has charge of the extension work of the northern states, recently said, "Ohio has a program for extension work through her country agents, county experiment farms, mailing service and other extension work that can scarcely be equalled by that of any other state. I believe that it can be carried out." By the Smith-Lever bill a large sum is to be given the state for extension work among the farmers. This year \$10,000 will be appropriated, which appropriation is to be increased each year until after eight years \$175,000 will be given the state by the Federal government. This money is to be duplicated by the state before it becomes available and in Ohio it will be used largely for county experiment farms with county agents. This movement means bringing the agriculture of the college to the farm. It means better farming, better homes, better communities.

Should such a plan whereby each county may have an experiment farm with a trained agriculturist in charge be hampered by personal feeling or restricted by individual opinion? We should not expect men to quibble over such a matter where only men, not the cause, are considered.

We have tried to give some of the facts of the case. This program means a lot of hard work; it also means serious criticism. But did you ever see any truly great work accomplished

without some adverse criticism? Let us get together on the movement for greater agricultural work in Ohio.

: + :

Autumn! The word is sounded to us in the gladsome music of busy and preparing Nature and dies
AUTUMN. out in the thought of expectant winter. It is the time of thanksgiving when all over the land the golden harvest of a favoring season is being laid by for a coming period. The barns bulge with their holdings; the corn fields speak of provender for the winter months; the trees of the orchards laden with ripe, luscious fruit prophesy long winter evenings joyfully spent around crackling grate fires. The sprouting wheat bespeaks another springtime. The farmer realizes that Nature has completed another season's work and that the Wise Provider has filled the granaries for a season of rest, when all things wait a short time only to burst forth in greater splendor at the opening of spring.

The trees of the forest are decked in gaudy attire; the golden and yellow and red colored leaves giving them the appearance of Oriental riches. With their crimson, purple and gold they are sweeter in death than in life. The squirrels frisk gaily as they gather their winter's store of food made possible by the silvery frost of the autumn morn while the birds bid us farewell as they flit by to warmer climes.

This is the time of great thanksgiving to Him who has so graciously looked after his people and has now brought the fruits of a long expected harvest. 'Tis certainly a time to be glad and thankful—a time when Man like Nature should rejoice with the enjoyment of rewards merited by honest labor and long toil.

The year 1914 will mark the beginning of a great step in the life of many a lad on an Ohio farm. The new three year course in agriculture will be open to him for the first time this year, so that now he can leave home after the corn is in the shock and return in time to plow for corn in the spring.

This course, which begins October 19th and closes March 19th, will supplant the former two year course and will consist of practically the same subject material. To those boys on the farm who cannot enter a four year course and who are handicapped somewhat by farm work in two of the busy seasons of the year—the early fall and early spring—this course offers excellent facilities. The essential studies of a thoroughly practical course in agriculture have been outlined in this course which should offer a better education than could be derived from the former system.

The expenses of the course are small; the returns, great. The call today is for better trained men on the farm and in every other line of agricultural work. If you have been interested in the course, write to the college for particulars. Try to influence that boy who you know is interested in an education in agriculture, to pack his trunk for a five month's stay at the college of agriculture.

Fellow-Student, Mr. Alumnus, or Mr. Farmer, have you secured your ticket to take you to the **NATIONAL DAIRY SHOW** to be held at Chicago, October 22 to 31?

Have you had dreams of those beautiful, silky haired matrons and those proud and masterly sires of the dairy breeds as they stand side by side in the show ring to have the emblems of excellence tied to them as a mark of their superiority and the skill of their owners?

The art of judging comes largely through practice and the constant study of type. Live stock judging in general is an art. But there is an opportunity for every one—the every day farmer as well as the college man—to increase his ability to recognize the fundamental factors in dairy cattle judging. The National Dairy Show is the Mecca to which every dairy breeder should make a yearly visit.

October 28th is "Ohio Day" which should be a great day for Ohio in her improvement work of dairy interests. Our state stands high among the dairy states of the Union by reason of her long line of champions. Attend the show this year and prove to the crowds from other states that the "Buckeyes" are the men who are doing things with the dairy cow. But we need to catch the spirit of still better dairy cows and more improved dairy apparatus. So attend the show and be carried along in the whirl of dairy sensations.





Why is it that so many children do not like to take the advice of older people? Nearly all are willing to learn, yet the difference in age, in sympathies, in the spirit of play and the reward for labor make a breach often hard to bridge. Boys will work together and understand each other in their own way. Was there ever a more opportune time to make the best of this than now? The Corn Boys will soon return from Washington. They will be full of enthusiasm about their trip, yes, and more than that, they will show real spirit when they tell how they grew the prize corn. If you are not near enough to have your young corn king talk to you, have him write you a letter about his success. Read it in school. Although conditions made one boy a loser this time, he has every chance to remedy his mistakes in planting and tending his crop for next year. The whole lesson is in being able to do better the next time.

Seth Shepard has been doing some real work in the teaching of agriculture. He is a teacher in Niles Township school, Cook County, Ill. Twenty-nine boys have been working this last summer under his instruction. The plan has been for the boys to make some

money and do some practical work in raising some crops. Each boy rented a few square rods from his father or neighbor and planted some garden truck. The scheme from the first looked so good that the school board allowed Mr. Shepard three months' wages for this kind of work. Near the end of the season the boys had banked \$645 and their total profits have reached nearly \$2000. The boys managed all of the business interests from the buying of the seed to the banking of the returns. The Ohio State Journal, in speaking of this work, says: "This is a splendid educational process. It not only strengthens the muscles of a boy, but it develops his spirit. It is drawing education out of vacation."

It certainly was pleasing to see the school work of so many children at the Fair. While the percentage of the counties represented was low, this was due to the distance from Columbus and the difficulty of transporting such material. Various phases of teaching agriculture were most elaborately displayed. It is impossible to tell the whole story here. Mention may be made of the splendid collection of blocks of wood representing our common trees. A school in Putnam County had these blocks so cut as to show a portion of the bark, also a lateral and cross section showing the character of the timber. Putnam County won the sweepstakes valued at \$433. Hazel Thompson, of Pt. William, Ohio, carried off first honors in the sewing and baking contest. The first prize on the map of Ohio was awarded to R. H. Robinson, Rome, Ohio. Judging from the products of field and garden, we must say that the science and practice of elementary agriculture have been successfully combined.

IDEALS IN TEACHING SECONDARY AGRICULTURE

O. M. KILE

West Virginia College of Agriculture

Just as the real teacher of mathematics teaches not only to calculate and to measure, but to reason and to think; and as the teacher of Latin, either consciously or unconsciously, trains the memory while laying up a store of stems and roots and declensions: so must the teacher of agriculture have constantly in view an object above and beyond the

that particular mass of information through some source other than the class room.

It is when we think of the high school course of study in this light, that we realize that if "agricultural education for all" is to become a reality, it must be taught with the idea of giving to the student something more than infor-



AGRICULTURE AS A BUSINESS HAS MADE GREAT FORWARD STRIDES.

mere acquisition of agricultural information.

In these days of crowded high school curricula it is doubtful whether any study, not directly concerned with the general business of making a living, could long retain its position on the required list, if its object were solely informational. The field of general information has become so vast that unless any stated mass of information offers something in the way of real physical, mental or moral development the student must usually be left to acquire

information—important and vital as that information may be to those who intend to make farming their profession.

What, then, is the Big Idea—the Ultimate Aim that justifies the teaching of agriculture to students who have no idea of becoming agriculturalists or of being in any way connected with agricultural affairs? What development of moral or mental fabric can we hope for as a result of this movement—what moulding of ideas and ideals that may finally develop into a national asset?

The alarmingly increasing drift of our

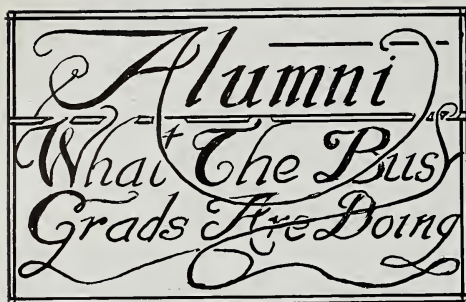
national population toward the cities is a well known and much deplored fact. The census tables point plainly to the bald facts but offer little suggestion as to a remedy. Whatever may have been the specific causes of this **translocation** in special cases it is itself evident that the general cause in the majority of cases has been one or both of the following: either the city seemed to offer greater financial rewards or the social advantages of the city surpassed those of the country. It is only natural for people to live where they think they can make the best living and enjoy themselves most. If all the people are satisfied, of course, the nation must be satisfied. However, there is an increasing mass of evidence that plainly indicates that large classes of people who have moved from the country to the city are not satisfied. They are finding competition for position so keen and furious that many persons of superior abilities are being forced to occupy inferior positions. Wherever these positions obtain to any considerable degree it is, of course, an economic loss to send more good material from the country to the city. However, large numbers continue to go. Can it be because of the fact that the attractions and advantages of the city are popularly over-

estimated while those of the country have been, in the main, under-estimated? If the general teaching of agriculture can effect a more accurate popular estimation of these relative advantages, it will have rendered a national service well worth the cost.

Agriculture as a business and a profession has recently made immense upward strides in the scale of importance—as the world work is ranked—but it still needs the added touch of sympathetic co-operation on the part of the public, and this will be more fully accorded it when the public has a better and more intimate understanding of the problems and needs of the farmer.

The teacher of agriculture must, of course, teach good practical agriculture—the kind that will help the young farmer to reap more bounteous harvests, to live a better and fuller life, and to be a more useful member of society; this is a first requisite. But no teacher of agriculture has taken full advantage of his opportunity nor even completely discharged his moral obligation to his community, unless he has done everything possible to emphasize the dignity of agriculture as a business, and to bring about a more sympathetic feeling and a better understanding between urban and rural residents.





On the afternoon of Wednesday, September 2nd, many of the alumni, ex-students, and students of the agricultural college who were attending the Ohio State Fair gathered in the auditorium of the Educational Building for the purpose of greeting friends and renewing acquaintances. A short session was held, Dean H. C. Price acting as chairman. Short responses were given by C. W. Burkett, '95; R. W. Dunlap, '95; E. J. Riggs, '95; L. E. Call, '08; O. M. Kile, '12; J. W. Henceroth, '14; L. L. Rummell, '15, and others. Light refreshments were served by the staff of The Agricultural Student.

Good attendance and unusual interest at the meeting favored the formation of a permanent organization making the reunion an annual event. The meeting will be held at 12:30 next year, The Agricultural Student having charge of arrangements as formerly.

Nearly three hundred alumni and students registered at the booth of The Student at the State Fair. The oldest student was Eugene F. Cranz, '84-85, of Ira, Summit County, Ohio.

E. J. Riggs, '95, formerly horticulturist for the agricultural commission, is now county agent of Washington County. Two county farms have been established, one for soils work and the other for horticultural experiments.

C. K. McClelland, '98, is the agronomist at the Hawaiian Experiment Station, Honolulu, T. H.

T. W. Wheeler, '04, is editor of The Farmer's Guide. This paper is printed at Huntington, Ind.

E. C. Cotton, '05, is engaged in fruit growing at Elyria, Ohio.

G. A. Crabb, '07, for the past year has been located at the State College of Agriculture and Mechanic Arts of the University of Georgia, Athens, Ga. He is in charge of the Soil Physics and Soil Fertility work.

E. A. Risser, '09, and L. D. Risser, '08, are farming a large farm near Pandora, Putnam County, Ohio. They are interested in the stock farming and feed quite a number of steers every winter. They are also interested in the promotion of live stock betterment in Putman County and take an active part in the numerous stock shows held in the county.

Prof. Joseph Gourley, a graduate of horticulture in 1908 and now head of the horticultural department at New Hampshire, visited the local department and made arrangements for the completion of his work towards a master's degree.

J. O. Williams, '08, who for the past six years has been the Expert-in-Charge of the Carriage Horse Breeding work at Colorado Experiment Station, Fort Collins, Colo., is now U. S. Live Stock Demonstration Agent at Clemson College, S. C.

F. N. Fagan, '10, is teaching at State College, Pa., in Penn State University.

F. C. Brown, '10, is located on a large fruit farm near Worthington, Ohio.

A. C. Brookley, '12, has left Adrian, Michigan, where he has been teaching in high school the past year, and now has a similar position at Henderson, Minn.

R. R. Walker, '12, has removed from Corsicana, Texas, and is now farming at Williamsburg, Ohio.

W. R. Clum, '10, is farming at Thornville, Ohio. He was a State Fair visitor.

R. L. Barr, '11, is orcharding at Lancaster, Ohio.

Oliver P. Dill, '12, is now located at Storm Lake, Iowa.

Morris E. Davis, who finished the two year course in 1912, is at present the dairyman at the Mansfield Reformatory. He was a visitor at The Student booth at the Ohio State Fair.

Earl Jones, '12, spent part of the summer in Columbus, but he returned to Orono, Maine, to resume teaching.

P. C. Laux, '13, after graduation began farming near Pataskala, Ohio. After remaining there a year he was elected instructor of agriculture at the local high school.

Raymond Jaeger, '13, is employed as dairy chemist in the Walker-Gordon Laboratories of Cleveland, Ohio.

L. H. Fudge, '13, is agricultural director at Stephen Public Schools, Stephen, Minnesota. He reports a very successful year and a bright outlook in agriculture for the future in that community.

J. W. Henceroth, '14, was married to Miss Laura Gieseler of Elm Grove, W. Va., on September 16. Mr. Henceroth is with the Middle West Soil Improvement Committee with headquarters at Chicago.

Ray Donnan, '14, has the position of teaching agriculture in the high school at Mountain Lake, Minn., which was left vacant by Harry Drain, '13. Mr. Drain has gone to Mississippi to teach dairying.

B. H. Repp, '14, is high school principal at Arcanum, Ohio.

Byron E. Pontius, '14, judged the hogs and helped to judge the sweepstakes classes in stallions and mares at the Henry County Fair, held at Napoleon, Ohio, September 2 to 5. He also had charge of the Boys' Judging Contest at this fair.

Karl Hirn, '14, is now farming on the home farm at Spencerville, Ohio, and says "The business is becoming more interesting as I get busier at it."

Don W. Griffin, '14, who was unable to take up missionary work in India this year on account of the war, is now teaching science and agriculture in high school at Le Roy, Ohio.

George Little, '14, is coach of athletics at the University of Cincinnati.

T. W. Yocum, ex-'15, is on the editorial staff of The Ohio Farmer in the position left by Clyde A. Waugh, '12. Mr. Waugh is now with the Middle West Soil Improvement Committee at Chicago. They were visitors at the Ohio State Fair.

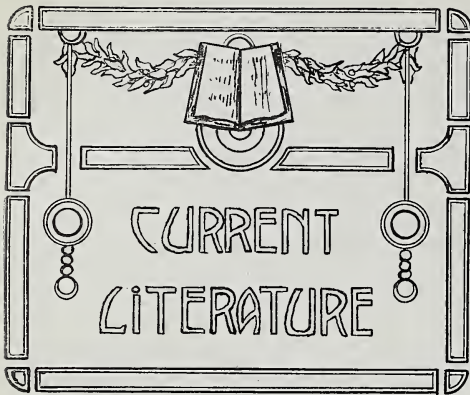
C. H. Riggs, '14, is now at the Bible Teachers' Training School at New York City.

E. B. Hawes, '12-'14, has charge of agricultural teaching in the schools of Brummell, W. Va.

N. R. Elliott, '14, is instructing in laboratory work of the pomology courses at Ohio State. C. R. Runyan will be an instructor in the new three year course in the same department.

G. L. Cassel, ex-'16, is farming near Mt. Vernon, Ohio. He is specializing in Berkshire swine.

G. O. Norton, '14, has charge of the dairy on the Ramelton farm at Mansfield, Ohio.



“Sheep Management” by Frank Kleinheinz of the University of Wisconsin, is one of the most valuable texts on the subject of general management of sheep for both the shepherd and student in college. Special subjects included in the text are: feeding, rearing of lambs, parasites, and fitting sheep for the show ring. The text is written in a simple style and since it is based on the writer’s lifelong experience with sheep, it is thoroughly practical. 225 pages, well illustrated. Price, net, \$1.60 or with “The Student” one year, \$2.10. Published by the author, Madison, Wis.

÷+÷

“Agricultural Engineering” by T. B. Davidson, B. S. M. E., is a new text book intended for students in high school or elementary work in college as well as for the general reader. A general discussion of agricultural engineering subjects is presented in logical, clear, yet concise form. Surveying, drainage, roads, sanitation, and farm structure receive special attention along with farm machinery and farm motors. 554 pages, illustrated. Price, cloth, \$1.50. Webb Publishing Co., St. Paul, Minn.

÷+÷

“The New Agrarianism” by C. W. Dahlinger. The author terms this a

survey of the present spirit of social unrest and a consideration of the consequent campaign for the adjustment of agriculture with industry and commerce. Such a task must require careful study of existing conditions and a clear insight towards their solution. This book is one of those intended to solve the problems of rural life as they appear today. 250 pages. Price, cloth \$1.00. G. P. Putman’s Sons, New York.

÷+÷

“Physics of Agriculture” by Prof. F. H. King is an established text book dealing with all physical laws in relation to agriculture. However, the book has been written from the standpoint of the general student and farmer rather than that of technical agriculture. The nature of the soil and plants, rural architecture, farm mechanics, and weather forecasting are dealt with in detail in this book. It will prove helpful for supplementary reading to any text along this line. 604 pages, illustrated. Price, \$1.75. Mrs. F. H. King, Madison, Wis.

÷+÷

“Rural Life and Education” by E. P. Cubberley is a new member of the Riverside Textbooks and is designed for teachers in rural schools and those interested in rural life advancement. Prof. Cubberley’s work is distinguished by clearness and correctness in his suggestions and by the use of practical photographs and drawings. The contents include problems of rural life and the rural school. One of the Ohio State Supervisors said: “If that book had been written especially for the state of Ohio, it could not have described our conditions better or offered more helpful suggestions to our rural men than what it does now.” 367 pages. Price, net, \$1.65. Houghton Mifflin Co., Boston, Mass.

"Productive Orcharding" by F. C. Sears, M. S., is the last addition to Lippincott's Farm Manuals. Special emphasis is laid on the practical side of orcharding as the author has seen it in a large orchard under his own care. Students and fruit growers have been kept in mind in preparing this book. Valuable suggestions are presented particularly on questions where authorities differ. All phases of orcharding from the care of the orchard to marketing the produce are plainly presented. 315 pages. illustrated. Price, \$2.00. J. B. Lippincott Co., Philadelphia.



"Rural Church and Community Betterment" is an effort on the part of leading men in church and educational work to throw light upon the subject of mobilizing of Christian forces and influences in rural community life. Such men as Pres. G. W. Fiske of Oberlin, Dr. Warren H. Wilson, along with many others, discuss in their masterful manner "The Teaching of Religion in the Country;" "Country Church Finances and Administration;" "The Function of the Country Church;" "Bible Study for Farmers," etc. 136 pages. Cloth, \$1.00. The Associated Press, New York.



"Field Crop Production" by Geo. Livingston, Ohio State University, is the latest book in the Rural Text-Book Series and is intended primarily to meet the demands of agricultural high schools and elementary work in colleges. It is based on actual experiment without the usual incumbrance of ever changing data, which in the opinion of the author, may be more satisfactorily gained outside of the general text book.

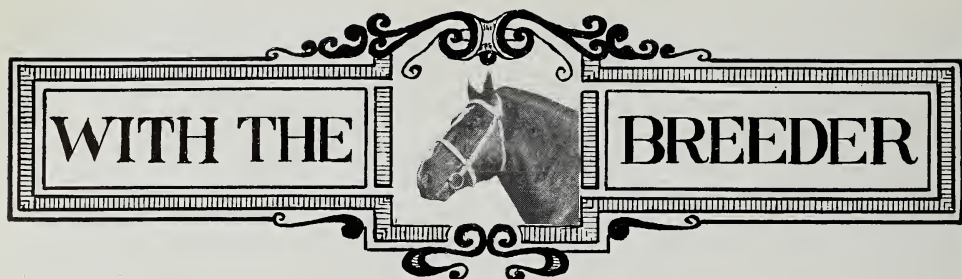
The book is valuable because of its attractive subject matter and interesting facts. It endeavors to point out the proper way to raise the maximum and most profitable crops. 424 pages, illustrated. Cloth, \$1.00. Macmillan Co., New York.



"The Challenge of the Country" by G. Walter Fiske, Junior Dean at Oberlin Theological Seminary, is a book readily recognized as a text book because of its sound facts and extensive knowledge of the subject discussed. It was written primarily for the Young Men's Christian Association for their Country Work and Student Departments. It vibrates with the vitality of Rural Christian Work and is built on the solid foundation of facts and the big grasp of country conditions. Those interested in the great rural life movement should give it their careful study and cooperation. 283 pages, illustrated. Cloth, 75 cents. Associated Press, New York.



"Milk and Its Products" by H. H. Wing, Prof. of Animal Husbandry, Cornell University. This is a new book in the Rural Science Series and a treatise on the nature and qualities of dairy milk and the manufacture of butter and cheese. It is the most up-to-the-minute standard work in the wide field of modern dairying. With its increased pages it embodies the latest in the way of new practices and labor saving devices and machinery for the production of milk in its many forms and improved foods. A new chapter has been added dealing solely with the dairy cow and her function in milk production. 311 pages, illustrated. Cloth \$1.50. Macmillan Co., New York.



DIRECTUM I—Now King of Pacers.

Turf history reached a climax at the Grand Circuit meet, at Columbus, September 30th, when Directum I, pitted against William in the world's greatest speed contest, paced the first heat in the remarkable time of 1:58 flat. Weather and track conditions were perfect and a record crowd of over 10,000 horse lovers accorded these sensational performers a great ovation when they appeared upon the track.

Directum I drew the pole but lost it by the first thirty yards. He trailed until the third quarter was reached, then turned out starting a length to the rear, and passed William 100 feet from the wire, winning in 1:58, the fastest heat ever paced in a race since turf history began. Time by quarts was:

$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	Mile
:29	:59 $\frac{1}{4}$	1:30	1:58

Directum I won the second heat in 2:00 flat. This gives this remarkable son of Directum Kelly the clear title of King of All Pacers.

XXX

The Grand Circuit races this year were top notchers as regards record breaking events. Anna Bradford, a little mare by Tod Mack, reduced her own record of 2:03 $\frac{1}{4}$ in the three year old pacing class to 2:00 $\frac{1}{4}$. This is a phenomenal record in this class.

Etawah, sired by Al Stanley, and owned by Ed Geers, made a new record when he trotted the last heat of a three heat race in 2:03 $\frac{1}{4}$. He is a four

year old with wonderful power and endurance.

XXX

Five thousand ten dollars was the remarkable price paid for May Rilma by J. P. Crozier at the recent public sale of Capt. C. B. Cassatt of Berwyn, Pa. This wonderful dairy queen holds the world's record with 1,073.4 lb. of butter fat in her yearly test, which places her at the head of all dairy breeds. She was sold at this sale along with sixty other high class Guernseys.

XXX

Spotwood Daisy Pearl, the dairy cow from whom May Rilma snatched the premier honors of the breed, has come back at the age of nine years with a record of 886.96 lb. of butter fat. This proves to the dairy world that record producing cows do not end their period of usefulness when a world's record is made. This cow is owned by O. C. Barber, Barberton, Ohio.

XXX

Futurity money to the amount of \$800 was divided between the two classes attracting thirty-three of the best yearlings ever lined up in any Ohio arena at the Eastern Percheron Futurity at Ohio State Fair, which proved to be the big event of the equine show. Sixteen yearling stallions and seventeen fillies responded to the call on September 3rd. They were a handsome and uniform lot of growthy, well made colts.

Althazar, a great going yearling

stallion well set up on limbs of the proper sort, carried off the blue ribbon for C. M. Jones, Ohio's oldest Percheron breeder, who lives at Plain City, Ohio. W. R. Lawrence and Son of Marion, Ohio, drew second place on Victor.

In the filly show the large, roomy Maudette, owned by W. R. Lawrence and Son and bred by O. H. Pollock of Delaware, Ohio, won first place.

XXX

G. A. Dix, of Delaware, Ohio, announces the sale of his wonderful two year old Percheron stallion, Velorus, to A. W. Green of Middlefield, Ohio. This is a son of Diamant formerly owned by C. M. Jones of Plain City, and now owned by R. D. McGonigle and Sons of Ashley, Ohio. His dam is Pauline owned by Mr. Dix. At West Virginia State Fair held at Wheeling, Mr. Dix won nine firsts, four seconds, and one third prize, three championships, one reserve champion, and one champion trophy for the best three mares.

XXX

Ohio farmers will find that a small flock of twenty-five to thirty good

breeding ewes can be well kept at small expense and they will prove of inestimable value in freeing the farm from weeds besides adding greatly to the farm income from mutton and wool. Ewes can be carried through the winter on rye or wheat fields provided they are not pastured too closely, or on clover hay with roots and some grain. If clover is not available, corn fodder may be used as roughage supplemented with bran or linseed meal.

Lambs should come early and be taught to eat grain as soon as they are old enough. A common practice is to buy ewes in the fall, breed them and sell the lambs the following spring. In buying ewes one should be sure that they stand well on their feet, have straight backs and sound mouths. None but a pure bred ram should be used. He need not be a show animal, but must be strong and vigorous. Shropshire, Oxford, Southdown and Hampshire rams sire excellent mutton lambs.

Farmers find it to their best advantage to regard wool as a by product and direct their principal attention to the production of lambs and mutton for the table.



RAISE YOUR OWN COWS



OCTOBER NEWS NOTES

THE Y. M. C. A.

With the new students better taken care of than ever before in the first two weeks of school, the Y. M. C. A. of Ohio State University has again taken up the regular work of its departments, every one of which is being expanded this year.

Figures show that not in vain has been the unselfish, untiring work of the thirty members of the cabinet and volunteer workers who made it easy for the freshmen the opening weeks. Paid up memberships to the number of 320 were in at the end of the first five days—more than the total membership of the year 1911-1912.

Nine hundred and ninety four dollars and ten cents represents the first two weeks by the employment bureau. Over 180 men are on the files of this department, with individual cases where a man is "broke" after paying his fees, or with \$50 or \$75 for the entire year on which to depend, or to those needing only to make their personal expenses.

This year the association will establish itself at the medical and dental

colleges, having an executive committee of their students with the chairman a member of the cabinet. Meetings will be held on Wednesdays from 7 to 8 o'clock. The first meeting was held September 30 at which Dean W. J. Means was the principal speaker.

Bigger than any work done so far in its scope and because it can embrace all else, the personal service and enlisting work of the big committee of fifty, to be increased to 100, launched the first Sunday in October, to reach out and interest every freshman in school, is the new department of the association. By it there is a general chairman in charge and under him college chairmen responsible for the committeemen of their college, each of whom is responsible for five freshmen who have been assigned to them, throughout the entire year.

First, they are to know their men personally, give them their friendship and upper class aid. Second, they are to interest them in the association meetings. Thirdly, each committeeman is to be thoroughly familiar, through an educational series of meetings, with the prospectus of Y. M. work.

ATHLETICS.

September marked the beginning of what will be one of the biggest years in the history of Ohio State University. Last year the conference baby demonstrated her ability to hold her own against the strong western teams and this year she is going to start things going on the offensive.

With the best schedule State has ever had, prospects look good for a successful football season. Coach Wilce last year demonstrated to all his ability as a football coach and more can be expected in his second season with the men. He with Director St. John and Coach Castleman round out as good a trio of football trainers as there is in the country. Doc Welsh will be missed from the freshman squad but his place is being filled by Richardson, Ag. '15, a former Eastern player.

Seventy-five candidates reported for the team this fall, a great number of whom are veterans. The line will be as strong or stronger than last year, but the good services of Briggs, Williman and Morrissey will be missed in the back field. Captain Honus Graf will be back stronger than ever as will Pickrel, Hobt and several other backfield men. Much good material is available from last year's strong Freshman team.

The schedule is as follows:

October 2—Ohio Wesleyan at Columbus.

October 10—Case at Cleveland.

October 17—Illinois at Urbana.

October 24—Wisconsin at Columbus.

October 31—Open.

November 7—Indiana at Indianapolis.

November 14—Oberlin at Columbus.

November 21—Northwestern at Columbus.

Director St. John says that the track squad is larger than it has ever been

before and the men are already beginning to train regularly. With the material from last year's freshman class a representative team may be looked forward to.

Captain Dawson and his cross country men are working hard getting into shape for the Western Conference meet which will probably be held at Purdue this year. Ohio finished third last year in a field of thirteen so something can be expected from Dawson and his runners this fall. A meet will probably be scheduled with Denison and other Ohio teams.

Having fairly demonstrated last winter the calibre of Ohio's basket tossers a full game schedule has been filled with Western Conference teams, six of which will be played in Columbus. Ohio games have not been scheduled as yet.

Mr. Hammond an English Soccer player formerly of the national team, will coach the soccer team this fall. Much interest is being taken in this sport, which is the national game in England and some high class college games with Wesleyan, Denison and others can be expected this year. In this way an opportunity is given for many men to play who do not care for the rougher American game.

Intra-Mural athletics will receive more attention than ever this year. A full schedule of Soccer, basketball, baseball, indoor and outdoor track will be played by the colleges. Last year the honors in all the sports participated in were carried off by the athletes in the college of agriculture, making them year-round champions with a total of 69 points, the Vets coming next with 43 points. It is hoped that as enviable a record can be repeated this year, with the addition of the soccer championship.

October 16 has been set as the date for open night for the college of agriculture at the Ohio Union. Plans have been started to have every student of the college and every member of the faculty present on that occasion. The Ohio Union will be thrown open from basement to the fourth floor and every effort will be made to get every student acquainted with his upper and lower classmen.

The total number registered in the university September 26 was 4105, showing an increase of 481 over the record of the corresponding date last year. The increase is due mainly to the addition of the departments of dentistry and medicine. The colleges of agriculture and engineering show a decrease. The decrease in the agricultural college may be due partly to the change in the short course.

The figures of enrollment are as follows:

	1914	1913
Arts	961	884
Agriculture	1041	1214
Engineering	860	873
Pharmacy	90	89
Law	199	173
Veterinary Medicine....	179	162
Education	271	141
Graduate School	117	87
Medicine	266	...
Dentistry	121	...

Prof. A. G. McCall will not go abroad this year on account of the war, but will take up work with the Bureau of Soils of the United States Department of Agriculture at Washington, D. C. He has been placed in charge of the soil laboratories by the Chief of the Bureau. In addition to this Prof. McCall will make a study of soils at Johns Hopkins University.

AGRICULTURAL SOCIETY.

"The twentieth century farmer needs a discussion of the relation of farming to manufacturing, banking, transportation and business in general" said President W. O. Thompson at the first regular meeting of the Agricultural Society which was held in Townshend Hall, Wednesday evening, September 23. He further added "Although agriculture may be the main issue, we cannot confine our interests to any one place or industry, but we must become men of a wide range of vision; we must see the relationship between ourselves and men in other lines of business. We can get this broader view point by education, from books and the press and by acquainting ourselves with the best farmers of our age."

"We must guard against provincialism and become not simply experts in one line of activity but get into a larger field and become servants of the world," he continued.

Following the address a short business meeting was held at which R. L. George was elected Business Manager of The Agricultural Student for the following year due to the withdrawal of F. H. Phillips from the university.

Convocation Hour, October 7, is the hour set for taking one of the largest panoramic pictures that was ever taken of the students of the university. A large picture will be sent to the Panama-Pacific Exposition where it is to be part of the United States Bureau of Education's display.

Due to the withdrawal of the Editor from the University and the resignation of the Business Manager, the Sun-Dial, the famous humorous publication of the University, may be discontinued.



ANIMAL HUSBANDRY NEWS.

Places on the Dairy Team are being closely contested for this year, with eight men in the race. The best dairy cattle in the vicinity of Columbus have been judged by these students. A three-day trip has been planned by the coach, Gilbert Gusler, to include some of the largest dairy farms in the Western Reserve. The teams from the various colleges will compete at the National Dairy Show at Chicago on October 23.

Nearly all the choicest live stock at the university, as well as that on many of the leading stock farms of Ohio, has been brought before the critical eyes of the aspirants for this year's International Live Stock Judging team which goes to Chicago to the Fat Stock Show the latter part of November.

At present sixteen are trying for places on the squad which consists of five men and will be picked by November 1st. Between this date and the time for the International Contest the team will make some extensive trips in Ohio, Indiana, and Illinois, visiting flocks and herds of world-wide fame. Prof. D. J. Kays will coach the team this year.

The contestants for places on the team this year compare well in both numbers and ability with the previous classes taking the work, and it is hoped

that Ohio State will be as well, if not better, represented in the final contest as our teams have been in the past.

SADDLE AND SIRLOIN CLUB.

Presenting some of the features of European live stock shows, Prof. C. S. Flumb addressed the first meeting of the Saddle and Sirloin Club, September 30th, with a large crowd in attendance. The Royal Show of England, the Highland Show of England and the Horse Shows of London, Paris and Brussels were compared with American shows.

The European fairs have no side shows, but are more educational in nature, with a larger number of entries than American shows have because the prize money is larger. One hundred dollars was the first prize in many classes. The European shows have greater conveniences than the American shows to help the visitor in finding buildings and animals. Catalogs furnish all desired information of the grounds at the Royal Show, and animals are stabled according to classes.

At the business meeting of the club, E. R. Hoftzyer was elected President; A. S. Wing, Vice President; C. E. Wyllie, Secretary, and L. P. McCann, Treasurer, for the first semester.

The university has purchased recently two grade Shropshire wethers from Jess Andrews, West Point, Ind. These animals are considered very good specimens and will be used for class room work.

Fifteen grade ewes have been purchased to be used in the breeding flock. They were bred by George Wilber, at Marysville, O.

DAIRY NEWS.

The number of cows tested from May 1, 1913, to May 1, 1914, is as follows:

Holstein (7 day).....	157
Holstein (year)	127
Guernsey	258
Jersey	213
Ayrshire	140
Brown Swiss	16

1911

Murne Cown, a Guernsey cow owned by O. C. Barber, Anna Dean Farm, Barberton, Ohio, is now finishing her yearly test and, if she continues at her present rate, she will become the world's champion Guernsey cow. Her record in 208 days exceeds that of May Rilma by eight pounds in the same time.

W. L. Clevenger, Assistant Professor of Dairying, was one of the many who were held in Europe on account of the war. He was in Switzerland at the time the war was declared, but left that country as soon as possible and arrived in Paris when the German army was within 40 miles of the French capital. The capital had been moved and the bank refused to cash checks the day after his arrival. However, Mr. Clevenger had an opportunity during the summer to study dairying interests in Denmark, Norway and Sweden and Scotland. He was especially interested in co-operative dairies and spent some time with the owners of large dairy interests.

It is reported that Maplecrest Stock Farm, formerly Dan Dimmick and Bro., of East Claridon, Ohio, has another high record cow, but no official announcement has yet been given.

TOWNSHEND LITERARY.

Dean H. C. Price, Prof. Alfred Vivian, Prof. George Livingston, and Clark S. Wheeler were among the speakers at the first regular meeting of Townshend Literary Society held in Townshend Hall, Monday, September 21. About seventy-five were in attendance.

Dean Price spoke upon the benefit of a literary society and the growth of the college of agriculture with its various departments. Prof. Vivian related some experiences of his travels abroad last year. Prof. Livingston suggested some plans for Townshend Literary Society during Farmers' Week as he saw the same idea carried out at Cornell University. Mr. Wheeler spoke somewhat of extension work in the state.

At the business meeting the following officers were elected for the coming semester: President, A. J. Bishop; Vice President, J. L. Bard; Secretary, R. A. Hammond; Treasurer, W. F. Jackson; Censor, H. Connaroe; Critic, V. L. Overholt.

Students entering the three year course in agriculture which commences October 19th, will be required to render military service for the full length of the course. Tactics will be taken up also as is customary with the students in other courses. A large number have already made application for this course.

The college of agriculture will furnish one instructor for the County Normal Schools which are being arranged by State School Commissioner, F. W. Miller.

Exhibits furnished by the college of agriculture were shown at nine county fairs.

EXTENSION NEWS.

Twenty-six Boys' Judging Contests were held during the summer and autumn at the various county fairs in the state. The local county fair associations offered the prizes which consisted of purses, live stock, trips to Chicago and to the Ohio Experiment Station. The extension department furnished an instructor to coach the boys during the spring and summer months, the same instructor having charge of the contest at the local fair. Unusual interest made the contests very popular.

One hundred six fertilizer meetings were held in various parts of the state during the summer. These demonstrations are very popular and 129 meetings were refused on account of requests reaching the extension office too late for arrangement.

Fall festivals have been planned to be held in those sections of the state where it will be impossible to reach by an extension school, especially in Adams, Athens, and Washington Counties. Each festival will last two days, the exhibits to be furnished by the local farmers, the extension department furnishing two instructors who will give practical lectures on various farm activities.

Extension schools will begin November 16, to be held every week reaching 45 different counties in the state. Soil fertility and farm crops will receive special attention at each school. These lectures include discussions underlying the maintenance of soil fertility, including such subjects as the food requirements for plants, the effect of till-

age, drainage, fertilizer and lime. One-third of the schools will receive instruction in animal husbandry; one-third, dairying; and one-third, horticulture. The instruction in animal husbandry will include a study of the different types and classes of farm animals together with a discussion of feeds and feeding and methods used by the best of breeders. Dairying will include milk, its composition and handling, barn sanitation, feeding and breeding of dairy cattle and construction of dairy buildings. A practical demonstration of the Babcock test is made at each school. Horticulture will include pruning, spraying, soil management of orchards and insects and diseases of fruits. Lectures on small fruits and vegetable gardening are supplanted.

Two instructors are furnished for work in Home Economics. Bread, meat, salads, vegetables, beverages, starchy foods, sanitation, home care of the sick, planning of meals and household management are among the subjects to be discussed.

C. B. Dillion, of the U. S. Department of Agriculture, recently paid Ohio State Extension Department quite a compliment by selecting over 400 photographs, charts, maps and other material, used in the extension work, from which reproductions will be made for use in the national extension work. The material collected will be offered to other states which are beginning the extension work as an example of how extension work is carried out and maintained. Many novel ways and means of teaching and explaining agricultural methods are used by the department at Ohio State and this is what the national department especially desires.

HORTICULTURE.

The department of horticulture is now installed in its new building, with equipment practically complete. A cold storage plant is being installed which will be used by the department in taking care of some of the products of the university orchard and gardens, thus giving the students practical experience along this line. The canning plant has been brought up to date by additional equipment, and the department will now be able to take care of the by-products of the orchards and garden. The department has no trouble disposing of its canned goods, large amounts being sold every year at a good price.

Activities of the students in vegetable gardening were creditably represented at the meeting of the Association of American Market Gardeners held in Philadelphia the week of October 5th, by a display prepared by the department from the work of the classes.

THE IRONTON APPLE SHOW.

Down in the most southerly part of the state, with its extreme southern portion forming a triangle, bounded on two sides by the Ohio River, lies the home of the Rome Beauty apple. Until the advent of this apple. Lawrence County was almost unknown in an agricultural way. Today it supplies a large population in neighboring cities and this year will ship over 100,000 barrels of fine apples.

For the first time in its history the county came to the front this year with a vast display of agricultural products. For one full week during the latter part of September the city of Ironton took on gala day attire. Along the main streets of the city were con-

structed many booths in which were displayed everything that is grown locally, from a potato to a fine stallion, but the treat of the show was the display of apples and other fruits.

For two city blocks there extended booth after booth of Lawrence County apples. Nearly all the important varieties were represented, but chief among these were those for which the county is establishing a reputation, which are Maiden Blush, Fall Pippin, and Wealthy of the late summer sorts; Grimes and Jonathan of the falls sorts; and Rome, Gano, and Winesap of the winter sorts.

THE UNIVERSITY APPLE SHOW.

The attention of alumni and ex-students engaged in orcharding as well as growers of the state is called to the annual University Apple show, which will be held the week following Thanksgiving under the auspices of the Ohio State University Horticultural Society. There are two general classes of entries, one of which is open only to students with the single restriction that the apples be grown in Ohio. The second class includes growers of the state who may desire to enter their own apples.

In addition to the exhibit of apples there will be entomological and pathological exhibits of interest to the orchardist, packing demonstrations, a floral exhibit, and displays in a smaller way of orchard tools and implements.

Growers and students expecting to enter exhibits should begin to make the selection of apples now while picking is in progress. A large number of fine premiums in the way of orchard tools will be given and in addition a large amount of cash premiums. Further information may be obtained from the President, C. L. Burkholder.

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Beginners' Class organizes Tuesday evening, October 13th, 7:30 o'clock. First lesson.

Second Term Class Monday evenings. List introduction. Reception (Open) Nights, Thursdays.

OAK ST. ACADEMY,

827 Oak St.—Citizens 7105.

Beginners' Class organizes Wednesday evening, October 14th, 7:30 o'clock. First lesson.

TUITION—Gentlemen, per term of ten lessons, \$5.00; Ladies, \$4.00. Private lessons, \$1.00, six for \$5.00. Tuition can be paid \$1.00 per week until paid. Private lessons can be had afternoons or evenings. The Waltz, Two-Step and One-Step taught in one term.

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TUITION.

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Private lessons, \$1.00; six for.....	5 00

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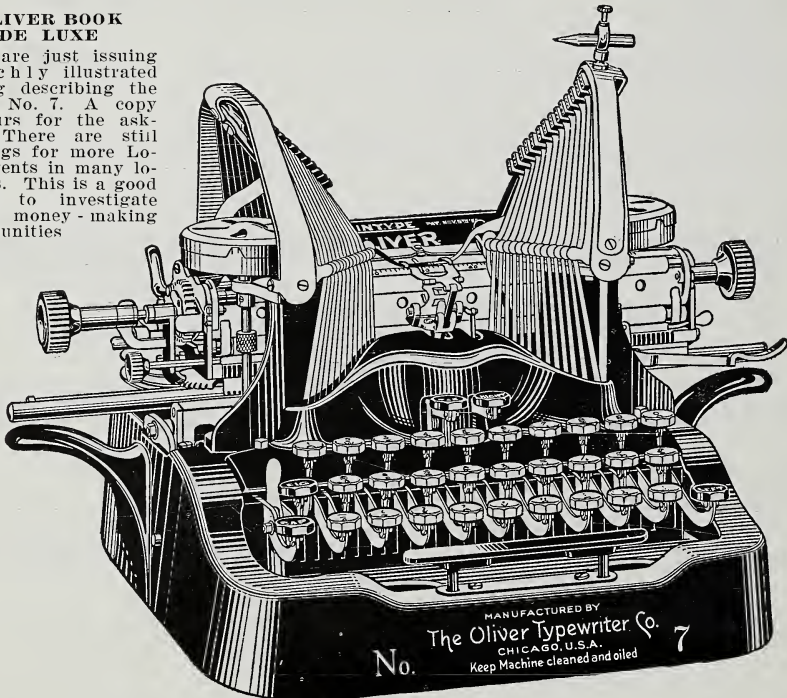
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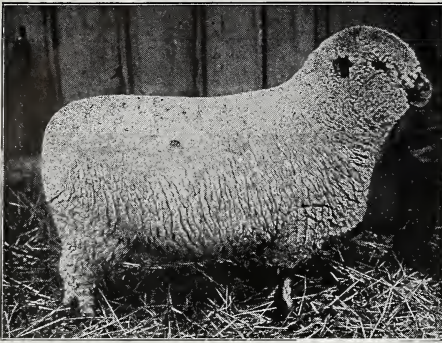
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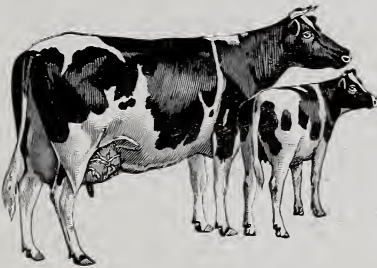
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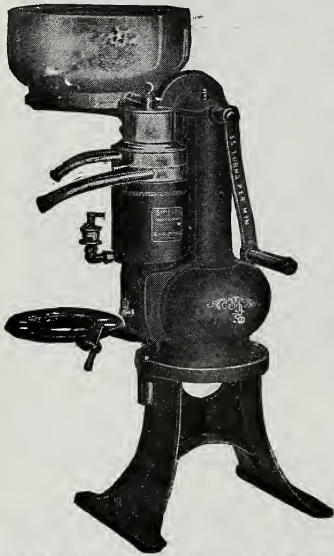
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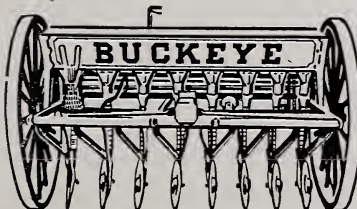
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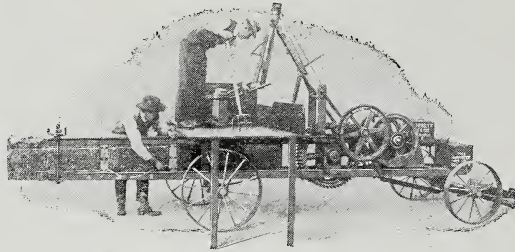
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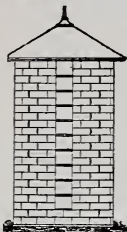
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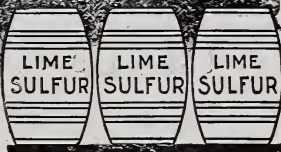
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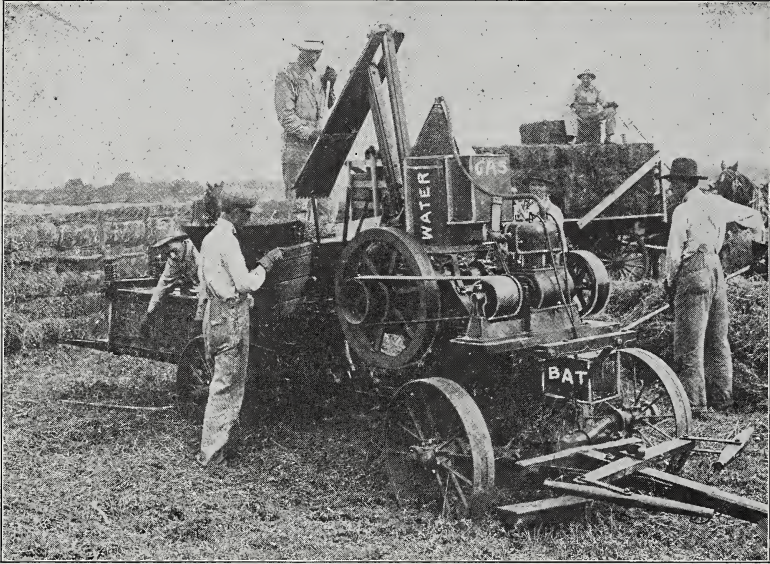
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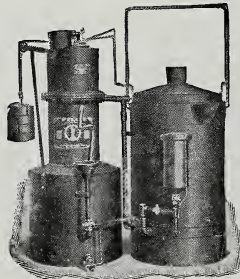
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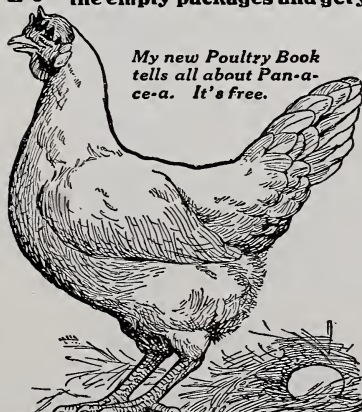
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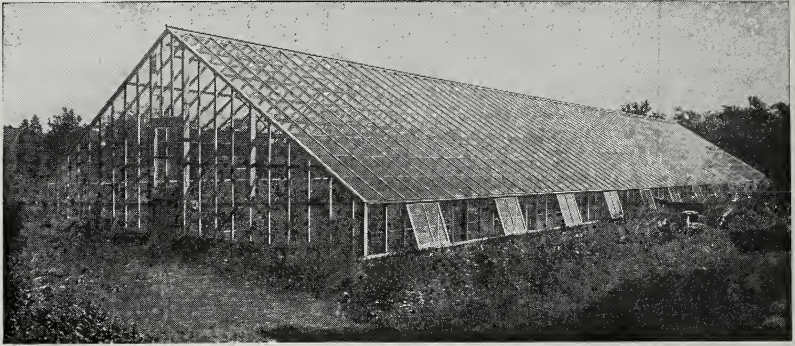
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